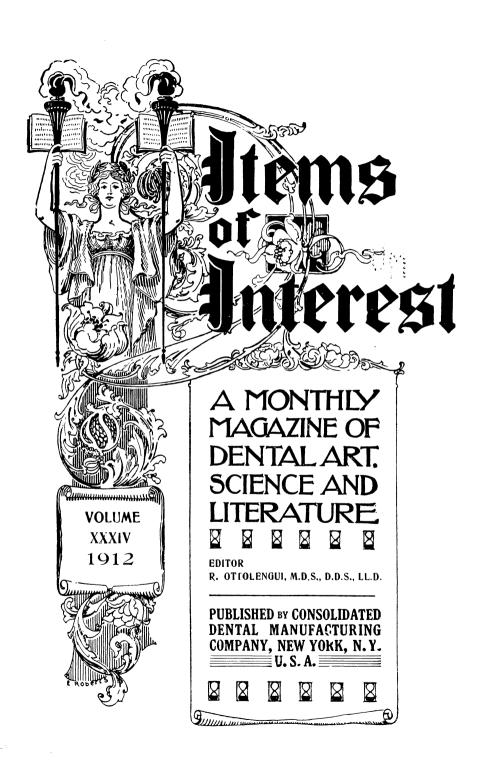
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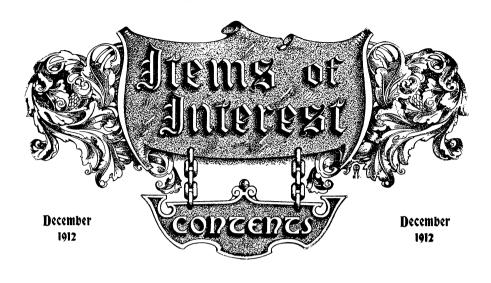
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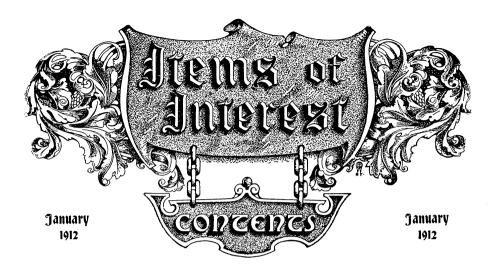
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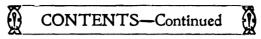
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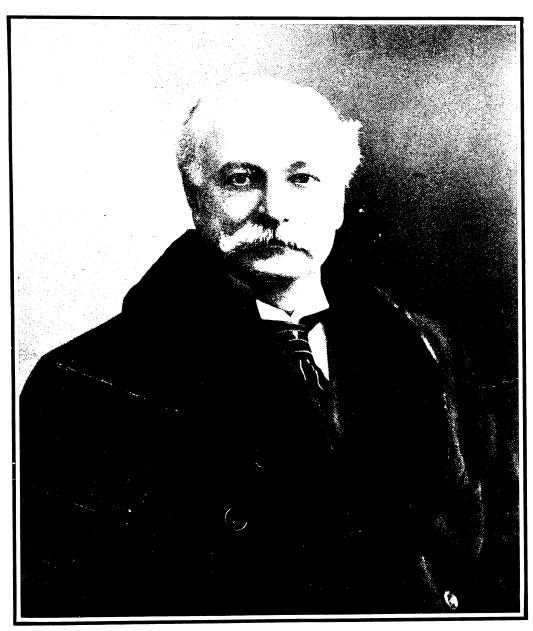
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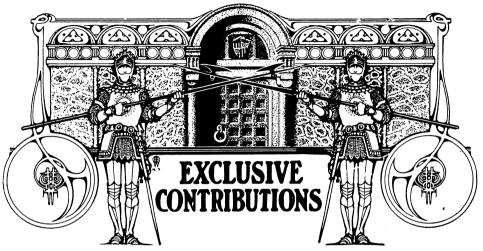
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DR. S. G. PERRY



Dental Radiography.*

By Howard R. Raper, D.D.S.,
Professor of Operative Technic and Roentgenology at Indiana Dental College,
Indianapolis.

CHAPTER VII (Continued)

5. To Determine When to Extract Temporary Teeth.

The best rule ever formulated for the extraction of deciduous teeth reads, "Extract a deciduous tooth only when its successor is ready to take its place." There are many cases where the operator is able to detect the presence of the succedaneous teeth by ocular and digital examination. In about as many cases, however, the only way to determine the presence of such teeth is by the use of the radiograph. Thus the rule just quoted is one which, when followed, necessitates the use of the radiograph. Fig. 145 is of a case where extraction of the temporary first molar is indicated, and extraction of the temporary second molar is contraindicated. The temporary second molar should not be removed for a year or so—not until the second bicuspid is just ready to take its place.

Often in practice we are confronted with abscessed temporary teeth. The age of the patient is such that we cannot decide whether the teeth are loose as a result of the abscessed condition, or because of resorption of the roots and the presence of the succedaneous teeth. A radiograph

^{*}Copyright, 1912, Howard R. Raper.



of the case will enable us to decide, and our treatment will be governed accordingly. Not only will the radiograph show the operator when deciduous teeth should be removed, but will aid him in their removal—especially in cases where the temporary teeth are badly decayed—by showing the exact size and location of the temporary teeth's roots and the position of the succedaneous teeth.

6. To Show the Orthodontist When He May Move the Coming Permanent Ceeth by Moving the Deciduous Ceeth.

It impressed me very much when I first heard of radiographically observing, and then regulating, teeth before their eruption. I heard of this in a lecture by Dr. Ottolengui. I quote Dr. Ottolengui:



Fig. 145.

Fig. 145. This picture shows that the temporary first molar should be extracted. The temporary second molar should not be extracted for a year or so, when the second bicuspid will be just ready to take its place. (Radiograph by Lewis, of Chicago.)

"One of the difficult operations which confronts

fig. 146. the orthodontist at times is the bodily movement of the bicuspids buccally. Very often in the past attempts to widen the arch, after the eruption of the bicuspids, has resulted in tipping the crowns buccally, the apices of roots remaining in the original apical arch. Hence, one of the chief advantages of early orthodontic interference lies in the fact that the temporary molars may be moved buccally, carrying with them the underlying bicuspids, and this advantage is made more clear if it be recalled that at this period the bicuspid roots are but partly formed. Even when the roots of the temporary molars are already considerably absorbed, still enough may be left to serve to deflect the oncoming bicuspids in the direction desired.

"This slide (Fig. 146), from the collection of Dr. Matthew Cryer (radiograph by Pancoast, of Philadelphia), shows nicely the usual relation of the erupting bicuspids to their predecessors, the temporary molars.



It will be noted that the apices of the bicuspids are still unformed, and it is clear that if these teeth can be led into proper positions during eruption, the formation of the apices afterward affords the most permanent 'reten-

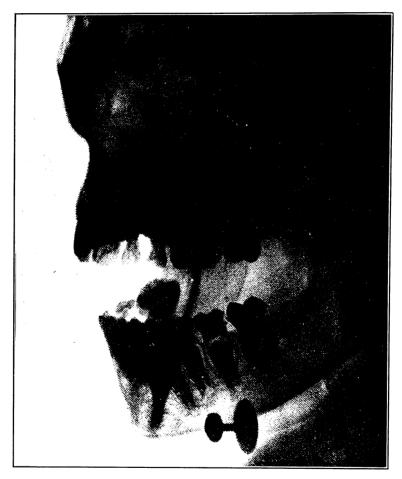


Fig. 146.

Fig. 146. Radiograph made to show relation of temporary molar roots with advancing bicuspids. (Collection of Dr. Cryer. Radiograph by Pancoast, of Philadelphia.)

tion.' A casual glance at the upper temporary molars might create a doubt as to the probability of moving the unerupted bicuspids, but there is an easily overlooked factor, viz., the palatal roots of these molars do not show in radiographs of this region at this period, because they lie behind the crowns of the bicuspids; that is to say 'behind,' in relation to the source of light, the X-ray tube."

3



7. To Observe Moving Teeth.

Fig. 147 demonstrates the congenital absence of Figs. 147, 148 and 149. the upper lateral incisor. The orthodontic appliance, seen in the radiograph, is being used to draw the centrals together. It was highly important in this case that the teeth be moved through the alveolar process *en masse*, and not tipped. The movement desired was one which would make the roots parallel when



Fig. 147.

Fig. 148.

Fig. 149.

Fig. 147. Congenital absence of upper lateral incisors. The orthodontic appliance seen is being used to draw the central incisors together.
Fig. 148. This radiograph was made one month after Fig. 147. It will be seen that there has been considerable movement of the teeth. The left central is tipped considerably.

Fig. 149. Made one month after Fig. 148. The central incisors are together and their roots almost parallel.

the crowns of the teeth came together, so that posts could be set in the canals of the central incisors, and a bridge made to restore the lost laterals. Fig. 148 was taken about a month after Fig. 147. It shows that the teeth had been moved together, but there was too much tipping of the left incisor—not enough movement of the tooth at the apex of the root, compared to the movement of the crown. It, therefore, became necessary to modify the force which was being used. This was done, and Fig. 149 shows the teeth together and the roots almost parallel.

A case in the practice of Dr. C. Edmund Kells, Figs. 150, 151 and 152. Jr., and reported by him in the May number of ITEMS OF INTEREST, 1911. Fig. 150 shows a malposed permanent cuspid above the temporary cuspid, the root of which is somewhat resorbed. Age of patient, eleven years. Fig. 151 was made one year and seven months after Fig. 150. "Compare this picture with Fig. 150, and it will be seen that the permanent cuspid has migrated in a line with its long axis," causing resorption of the permanent lateral root. The temporary cuspid was extracted, but the permanent tooth did not erupt into its position in the arch. It was, therefore,



concluded that the tooth "would have to be brought down by some mechanical means." Accordingly, the gum tissue and overlying process were "slit down to the cuspid and then gently spread apart, and the cuspid was exposed to view." "A piece of iridio-platinum wire was then shaped, as shown in Fig. 152, and the hook was worked supposedly

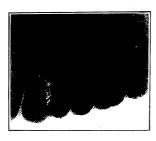


Fig. 150.

Fig. 151.

Fig. 150. Malposed, permanent cuspid above the temporary cuspid, the root of the latter somewhat resorbed.

Fig. 151. Same as Fig. 150 one year and seven months later. Observe that the cuspid has migrated in the line of its long axis. The permanent lateral root is badly resorbed.



Fig. 152.

Fig. 152. Same as Figs. 150 and 151 after removal of the temporary cuspid. The wire hooked over the cusp of the tooth was thought to be placed over the mesial prominence until the radiograph was made.

under the mesial prominence of the cuspid, and a rubber ring attached to the loop on the other end, and secured to a lug on the molar band, all as shown in Fig. 152, which is a skiagraph of the case with the appliance in position. Imagine my surprise to find by this picture that the hook was not anywhere near where I had thought I put it. Instead of being well up under the mesial prominence, it was merely caught under the point of the tooth, and, of course, it slipped off shortly after the patient left the office. Upon her return a hook 3/8 of an inch longer was fitted in place, and this time, with a radiograph as a guide, there was no mis-



take about its placement. The appliance was worn for several weeks, at the end of which time the point of the cuspid having been brought to the surface of the gum, it was removed and the tooth allowed to erupt by its own volition." Despite the great destruction of its root the lateral remains firm and apparently healthy.

8. In Cases of Supernumerary Teeth.

A case in the practice of Dr. B. S. Partridge, Chicago. Patient's age, twelve years. The teeth were being regulated, and the radiograph, Fig. 151,





Fig. 153.

Fig. 154.

Fig. 153. A and B, supernumerary tooth bodies. C, the crown of the temporary cuspid.

D, the permanent cuspid. (Radiograph by Lewis, of Chicago.)

Fig. 154. A and B are supernumerary teeth. (Radiograph by Lewis, of Chicago.)

was taken to determine the presence or absence of the permanent lower cuspid. A little supernumerary tooth (A) could be seen in the mouth occupying a part of the space which should have been occupied by the permanent cuspid. The two shadows marked "B" are two more supernumerary tooth bodies. The larger shadow marked "C" is the crown of the temporary cuspid, which had never erupted. The large shadow to the left, marked "D," is the permanent cuspid pressing against the side of the lateral at the apex of its root. The three supernumerary bodies and the crown of the temporary cuspid (the root was resorbed) were removed, allowing the permanent cuspid to erupt.

Just lingually to each central incisor is a supernumerary tooth. One (A) could be seen in the mouth, but there was no evidence of the other. Neither central nor lateral incisor roots are as yet fully formed, and the laterals have not yet erupted. Indeed, before the picture was made, it



seemed that a peg-shaped lateral was erupting just lingually to the central. The radiograph shows this tooth to be supernumerary.

Dr. T. W. Brophy, of Chicago, reports a case of insistent suppuration due to an impacted supernumerary tooth, which was found by the use of the radiograph. Dr. Brophy calls attention to the fact that a correct and definite diagnosis could not have been made by any means at our command except the X-1ays. The case recovered promptly upon removal of the supernumerary tooth. I regret that I have been unable to obtain radiographs of this case.

Fig. 155.

An impacted upper fourth molar.





Fig. 155

Fig. 156.

Fig. 155. An impacted upper fourth molar.

Fig. 156. A supernumerary tooth in the canal of a cuspid tooth. (Radiograph by Clarence Van Woert, of New York City.)

To me this is a most remarkable case—a supernumerary tooth in the canal of a cuspid tooth—a tooth inside of a tooth. The supernumerary tooth has a root canal, and the crown is covered with enamel. There is no doubt of the fact stated, because Dr. Van Woert, after radiographing the case, drilled into the permanent cuspid and found the enamel-covered supernumerary within. The radiograph is not as good as I wish it were. The upper two-thirds of the roots of the teeth shows fairly well but there is a confusion of shadows in the lower third and in the crown.

9. In Cases of Impacted Teeth as an Hid in Extraction.

Impacted, lower, third molar tipped to the mesial. The picture shows that in this case a knife-edge stone in the dental engine could be used to advantage, cutting away the mesio-occlusal portion of the third molar, and so greatly facilitating the removal of the tooth. Observe the absorption



of the distal surface of the second molar (the light area), due to pressure against it; and the large abscessed cavity (light area) between the second and third molars, extending down to the apex of the second molar. This radiograph is of particular interest, because it shows so clearly an abscess caused by impaction.

That the pressure of an impacted tooth may cause absorption of the tooth against which the Figs. 158 and 159. pressure is brought to bear, is further illustrated in Figs. 158 and 159.

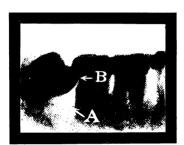




Fig. 157.

Fig. 162.

Fig. 157. An impacted lower third molar. The light area between the second and third molars represent a destruction of bony tissue, arrow A. Arrow B points to a light area, which represents the absorption of the second molar. (Radiograph by Blum, of New York City.)

Fig. 158. An impacted upper third molar. The arrow points to a light area representing absorption of the upper second molar. Notice the very poor filling encroaching on the pulp of the first molar and filling the interproximal space between the first and second molar. (Radiograph by Ream, of Chicago.)

In Fig. 158 the arrow points to a light area representing absorption of the upper second molar, due to the pressure of the third molar against it. A study of this radiograph gives the dental surgeon a good idea of how he should apply his force in extraction.

Fig. 150 is a case of Dr. Cryer's. I quote Dr. Cryer: Fig. 159 "shows an impacted, lower, third molar resting against the posterior root of the second molar. It will be seen that the root of the second molar is much absorbed, which caused considerable trouble. Removal of the second molar gave relief to the patient. . . . The upper third molar is in an awkward position."

Figs. 160 and 161 show impacted upper third molars. The value of these radiographs to the ope-Figs. 160 and 161. rator, about to extract, is apparent.

> This radiograph (Fig. 162) shows the surgeon just how much bone must be dissected away before the malposed tooth can be removed. Patients seldom

know that the removal of a tooth is not always a simple operation. They



are therefore inclined to blame the operator if the tooth is not quickly removed, instead of crediting him with difficult work on a difficult operation. They are likewise unwilling to pay a fee in proportion to the diffi-

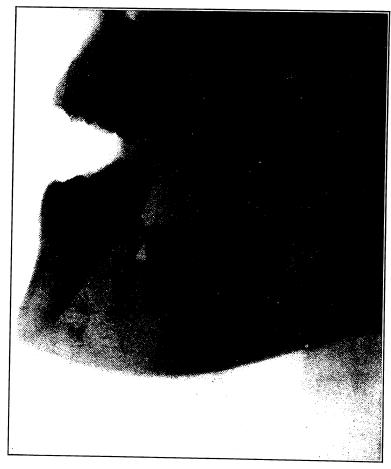


Fig. 159.

Fig. 159. Impacted upper and lower third molar. Absorption of the distal root of the lower second molar. (Radiograph by Pancoast, of Philadelphia.)

culty of the operation, as compared to other operations. The removal of the third molar, shown in Fig. 162, is a more difficult operation than the removal of a vermiform appendix. By showing patients radiographs of such cases the dentist will gain their earnest, intelligent co-operation. They will know just what is done for them, and for the first time in their



lives they will understand that the extraction of a tooth may be a serious, difficult and expensive operation.

The following report of this case is by Dr. F. K.

Ream, of Chicago. "Patient's age, seventy-two years.

Symptoms: Swelling near symphisis thought to be the result of wearing an artificial denture. Considerable pain. Diagnosed





Fig. 160.

Fig. 161.

Fig. 160. Impacted upper third molar. (Radiograph by Lewis, of Chicago.)

Fig. 161. Impacted upper third molar. Notice the difference in the position of the impacted tooth shown in this case and in Fig. 160. (Radiograph by Blum, of New York City.)

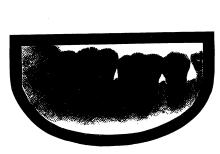


Fig. 162.



Fig. 163.

Fig. 162. Impacted lower third molar with its occlusal surface presenting mesially. The radiograph shows the dental surgeon how much bone must be burred away before the tooth can be removed. (Radiograph by Ream, of Chicago.)

Fig. 163. Impacted bicuspid in an otherwise edentulous mouth. Age of patient, 72 years. (Radiograph by Ream, of Chicago.)

cancerous by surgeons, and patient advised to go to the hospital for operation. The radiograph (Fig. 163) shows an impacted bicuspid in the otherwise edentulous jaw. Operation: Alveolar process burred away and tooth removed. Result: Immediate and complete recovery."



Fig. 164 is a case of Dr. Cryer's. I quote Dr. Cryer: Fig. 164 "shows a lower third molar passing under the second molar and becoming lodged between the first and second molar, the crown of the third molar pushing against the root of the first molar. The first molar was extracted, which cleared up the neuralgia, and the third molar pushed up into the place of the first molar."

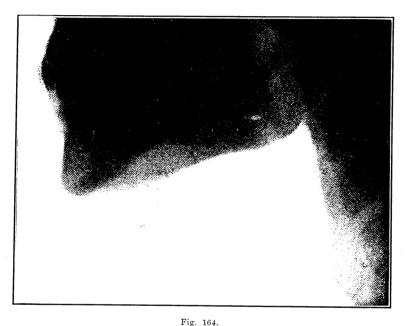


Fig. 164. Lower third molar lodged between the first and second molars. (Radiograph by Pancoast, of Philadelphia.)

Fig. 165 is also a case of Dr. Cryer's. The radiograph shows an impacted upper third molar, with the occlusal surface presenting upwards. Dr. Cryer's remarks concerning this case are interesting. I quote Dr. Cryer: Fig. 165 "shows the occluding surface of the upper third molar pointing upward towards the posterior portion of the orbit. The patient had been suffering from disturbance of the eye for a long time. Considerable improvement took place in the eye soon after extraction of the inverted tooth."

10. To Determine the Number of Canals in Some Teeth.

It will be noticed that I say "to determine the number of canals in some teeth." Of course, it is not necessary to use the radiograph each



time we open into a tooth to learn how many canals that tooth may have. But occasionally I do find it necessary or expedient to use the radiograph to verify or disprove the existence of some unusual condition suspected.



Fig. 165.

Fig. 165. Impacted upper third molar with the occlusal surface pointing upward. Radiograph by Pancoast, of Philadelphia.)

Tig. 166.

Case: An upper first molar in which but one small canal could be found. After searching for the other two canals for a few minutes, the one canal was filled with gutta-percha, and a radiograph made (Fig. 166); this shows that the tooth had but one canal. In this case the radiograph saved considerable work and worry on the part of the operator. I have known second and third molars to have only one canal, but this is the only case I have ever encountered in which a first molar had but one canal.

This case was in the hands of one of the most expert operators in Indianapolis. The lower first bicuspid had been devitalized, and the pulp removed,



but the tooth remained sore. Radiography was resorted to to learn, if possible, the cause of the persistent pericementitis. A piece of ligature wire, such as is used by orthodontists, was placed in the canal and radiograph Fig. 167 made. The wire follows the enlarged canal. But this particular tooth happens to have two canals. The unopened canal is seen to the distal of the wire. If a man, having the skill of the operator who handled this case, misses a canal, as this man did, then I firmly believe that the mistake is one that any man, however skillful, is liable to make.

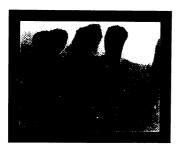




Fig. 166.

Fig. 167

Fig. 166. Upper first molar with but one canal which is filled.

Fig. 167. The dark streak in the first bicuspid is a wire passing into the canal. This tooth has another canal, which can be seen as a light streak distally to the wire. The more or less oval dark spot at the neck of the first bicuspid is a buccal cervical filling.

Crown of the tooth is stopped up with gutta-percha.

Let me say here that a lower bicuspid, or cuspid with two canals, is not such an unusual occurrence, as it is generally believed to be. Men have shown me such teeth, and spoken of them as though they were rare anomalies. As a teacher of operative technic, I devote a part of my time to the dissection of teeth. In this work I handle thousands of disassociated human teeth. In my work of last year, for example, I estimate that I observed six to eight thousand teeth. And among these I noticed not less than seven lower cuspids and five lower bicuspids with two canals each.

Without printing the radiograph, which is not a very good one, I quote the legend which appears beneath it in the last edition of Buckley's "Modern Dental Materia Medica, Pharmacology and Therapeutics." "In this case the author desires to insert a bridge. On opening into the third molar and second bicuspid, which teeth were to be used for the abutments, we were unable to find any canals in the bicuspid, and only a small canal in the molar. The skiagraph confirms the clinical findings."



11. As an Aid in Filling the Canals of Ceeth with Large Apical Foramina.

To demonstrate this use of the radiograph a central incisor with a large apical foramen was chosen, and an orthodontic ligature wire passed into the canal until the patient received sensation. The worthlessness of the "sensation test," as a guide in filling to the apex of canals is demonstrated by Fig. 168, which shows the wire penetrating the tissues four or five millimeters beyond the apex of the tooth. After the radiograph (Fig. 168) was made, the wire was removed, and that part of it penetrating the apex cut off, or as nearly as could be judged from the appearance of the radiograph.







Fig. 168.

Fig. 169.

Fig. 170

Fig. 168. A wire passing through a large apical foramen in an upper, central incisor, extending several millimeters into the tissues above the apex of the root.

Fig. 169. The same case as Fig. 168, after the wire has been removed, a part of it cut off and reinserted into the canal. The wire reaches just to the apical foramen.

Fig. 170. The same case as Figs. 168 and 169, showing a canal filling of gutta-percha closing the apical foramen, not penetrating through it, and not leaving a little of the canal unfilled at the apex of the root. The entire canal is not filled, because there is to be a post set in it.

Next the shortened wire was reinserted and another radiograph (Fig. 169) made. This shows that my judgment in cutting off the wire in this particular case was unusually good. The wire reaches just to the apex. It may be necessary to make two or three trials before the wire is placed just to the apex.

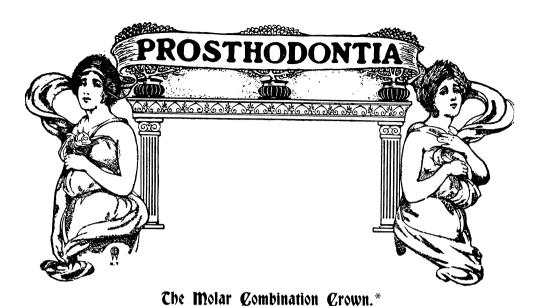
With the length of the wire as a guide to the length of the root, the proper distance was measured on a canal plugger, and the distance marked on the plugger by passing it through a little piece of base-plate gutta-percha, stopping the gutta-percha on the plugger at a distance from its end equivalent to the length of the wire. The end of the canal plugger was then



warmed slightly, and brought in contact with a small piece of gutta-percha canal point. With the piece of gutta-percha so fastened on the canal plugger, it was carried into the canal a sufficient distance to reach, but not pass, beyond the apex. (Fig. 170.) A slight twist of the plugger will disengage it from the gutta-percha, when the latter may be tamped firmly, but not too forcibly, to place. No further filling of the canal was done in this case, the canal being left open to receive a post. The method just described is positively the only one which enables the operator to fill canals with large apical foramina perfectly.

What will happen if the canal filling either fails to reach the apex or passes a little beyond it? An abscess may result. If the canal filling fails to reach the apical foramen, in such cases as the one just described, an abscess is sure to occur. If perfectly aseptic gutta-percha is used as a canal filling, and the tissues above the apex are not infected, then the passage of a little gutta-percha into the apical tissues will probably not result in suppuration or even inflammation, so well do tissues tolerate gutta-percha. But the fact remains: The ideal canal filling is one which fills the canals, neither falling short of the end of the root nor passing beyond it.





By Herman E. S. Chayes, D.D.S.

Before attempting to describe the construction of a molar combination crown, it is well to determine just when, and why, such crowns are ever needed, and it is as well to conclude that any molar tooth, the crown of which has, because of gradual decay or other causes, become broken down too much to be perfectly restored with a Taggart inlay, is a fit subject for being replaced with a combination crown; that is, a Taggart cast base of gold and a porcelain crown.

This, of course, holds good only when the tooth is to be considered as an individual dental member, and not as a contributory abutment factor of a bridge, which again does not mean that combination molar crowns may not be used as bridge abutments. The foregoing statements are made because the writer's series of articles upon this subject seem to have evoked in a great number of readers desires to so improve upon the technique or enlarge upon its scope, that it seems necessary to emphasize the fact again and again that we are traveling in heretofore untrodden paths, collectively speaking; that we must stop at each place long enough to realize and assimilate just what the place may offer and does offer, but no more. We must not anticipate lest we get our various steps and techniques all muddled, so that the result will be a jumble instead of a complete and scientific technique.

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Combination Molar Crown Defined.

When we speak of combination molar crowns, we speak of crowns intended for the largest teeth in the human jaw, and so naturally we are dealing with those dental adjuncts, which, by virtue of their size, offer the greatest extent of area to the stress of mas-

tication. It, therefore, follows logically that with the increase in area, and the consequent increase in stress, there should come an increase in watchfulness on the part of the operator, when his skill is sought for the



FIG. 1.

task about to be described. The very position, too, of the molars forms a great factor in determining technique; first, because molars must withstand greater stress, since they are located in the neighborhood of that part of the power arm of the lever of mastication, which is the most direct, and hence which possesses the greatest urging force; and second, because they are located in the distal portion of the dental arches, and hence considerably more difficult to reach.

So that we have in the increase of area and the increase of stress, in the functionally physiological importance, and in the anatomic geographical position of the teeth now to be considered, a combination of circumstances calling for a technique which must be as carefully imparted as it has been carefully evolved.

Let us assume that we have before us a case requiring one such crown, and that its position is that of the right lower first permanent molar. Let us further assume that the case has, in addition to its natural complexity, the added one of putrescent pulps and walls broken down below the margin of the gingiva. (Fig. 1.)

Creatment of the Right Lower First Permanent Molar.

Spray the patient's mouth with I per cent. solution of carbolic acid in water, and wash the area around the affected tooth with alcohol carried upon a large pledget of cotton; pass floss silk carefully between the teeth on the distal and mesial side of the molar, and adjust the rubber dam,



using a molar clamp of the proper size to hold it in place. In cases of nervous and irritable patients, it is best to use an obtunder to desensitize the gum tissue before the dam is applied. In cases of extensively broken down walls, it is practically essential to construct a metal band, which will go over the remaining walls of the tooth and, reaching beneath the gum margin, will thus facilitate the application of the rubber dam.

Creatment of Cavity and Roots. With large spoon-shaped excavators the debris is removed from the cavity of the tooth until the pulp chamber has been fairly well cleared of it. The excavators are best manipulated with a scooping motion, and an attempt is made to so insert the instru-

ment that it will act as a lifter and a wedge, forcing its way in between the healthy and the diseased structure. Smaller spoon excavators bent at an oblique angle are now called into play, and the debris is removed from the deeper portions of the pulp chamber, or that part of it leading into the pulp canals one-third down into them. The cavity is carefully washed with a solution of bichlorid, I to 250, and dried with a blast of cold air. A dressing of tricresol and formalin is then inserted into the pulp chamber, and a temporary cement filling is so placed that it will just seal the dressing in the tooth, but not fill the cavity within two-thirds of its volume. When the cement has hardened another mix is made, and the filling of the cavity is so completed that an excess of the filling material forces the gingiva away from the side of the tooth which has suffered most during the breaking-down process.

The patient is dismissed for a period of three days in order to allow the drug to neutralize the virulence of the putrescent material present in the pulp canals. At the next sitting the same procedure of cleansing the field of operation is pursued, the dam is applied, and the cavity is opened by removing all but that portion of the temporary cement which holds the gingiva at a respectful distance from the margin of the cavity.

The dressing is removed, and the pulp canals are carefully cleared by means of Donaldson cleansers and twist pulp-canal reamers, to be followed up with Gates-Glidden or Beutelrock drills, if necessary. All debris must be removed, and with that end in view any means which will accomplish this without harm to tooth or patient are justified. It is best to begin using the smaller size twist broaches or reamers, following these up with the larger size, often returning to the smaller ones to clear the way, until the desired degree of cleanliness and bore has been obtained. Again a bichlorid bath is applied in the pulp chamber, and with a smooth broach pumped into the canals, which are subsequently dried with a blast of air.



The apical half of the canals are then filled in the manner described in a previous article of this series, whereupon the coronal half of each canal is enlarged sufficiently to receive threaded posts of varying sizes, as follows: the coronal half of the distal canal is reamed until it is large enough to just admit a 16-gauge threaded iridio-platinum post. The coronal half of the mesial canals are reamed until they will receive 18-gauge iridio-platinum posts.

The pulp chamber is so prepared that it presents the appearance of a box-like cavity, the mesial, distal, facial and lingual walls rising sheer from the floor of the chamber. The distal wall should form an acute angle with its part of the pulp-chamber floor; the mesial wall should form an acute angle with its part of the pulp-chamber floor; the lateral and lingual walls should form acute angles with the respective parts of their pulp-chamber floors, so that the floor presents a sort of gable roof or pyramidal appearance, and if a line be drawn from the cavo-distal to the cavo-mesial angle, it would complete an isosceles pyramidal (triangular) figure, the apex of which would be represented by the gable-like eminence upon the floor of the pulp chamber. (See Fig. 10.) This is done so as to partially break the shock that is transmitted to the circumference of the root during mastication, and to increase as much as possible the area of contact surface between the natural root and the artificial crown.

The tooth is now filled up with temporary stopping, the dam is removed and the patient is dismissed for a day or two.

At the next sitting, the broken-down crown, plus temporary cement, plus temporary stopping, is removed entirely from the root at the point where the morsal plane of the gingival third merges into the gingival plane of the middle third. This is best accomplished with small knife-edge stones held in the contra-angle handpiece and run under water until the enamel has been cut through, when small tapered cross-cut fissure burs take the place of the stones and the severing process is completed.

Creatment for Coronal End of Root.

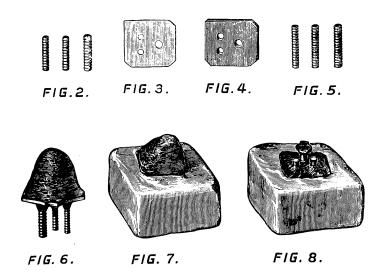
The morsal plane of the root is now dressed down with more suitable carborundum stones to within 1-32 of an inch of the gum line, no attempt being made to bevel any of the walls at present.

Pieces of German silver wire, one of 16- and two of 18-gauge (Fig. 2), respectively, threaded and just long enough to allow them to protrude beyond the root into oral space, are now inserted into the three canals; a piece of thin cardboard cut to approximate the size and circumference of the root (Fig. 3), is placed over the root and gently pressed so that it will show the position of the posts; it is removed from the mouth and perforated at the points indicated. The cardboard

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is then placed upon a piece of German silver, 27-gauge plate, and its shape is indicated upon the metal with a sharply pointed instrument (Fig. 4). The position of the holes are also noted and marked off. The three short posts are now replaced with three others, each ½ of an inch longer than its predecessor (Fig. 5), and the perforated German silver plate is so placed over the root that each perforation will engage its corresponding post; a drop of hard wax, properly placed, will effectually engage the plate and post in the required relative position. A small ball of baseplate wax is softened and placed upon the hard wax, which united the



posts to the plate, a spray of ice water chills the mass, so that it can readily be removed without danger of distortion (Fig. 6).

We now have a sort of wax crown resting upon, and holding together, a little three-legged metallic table, which we at once invest into the refractory compound used in our soldering operations. (Fig. 7.) When the mass is hardened the wax is removed, the piece is cleansed and the posts are permanently attached to the plate by means of a silver solder. On to the center of the plate is attached, by means of the same solder, a small brass, copper or German silver rivet about 1/8 of an inch in height and 1/4 of an inch in diameter. (Fig. 8.) The piece is chilled, and the sections of posts extending above the plate are removed with a pair of wire nippers or a saw. Two pieces of gutta-percha base-plate are now heated and perforated, so that they may be placed upon that part of



the metallic carrier which fits into and over the root. The base-plate is trimmed, so that it conforms in outline to the circumference of the metal plate, the part that rests above the pulp chamber is built up with more gutta-percha, as is the part which is to cover the wall broken down for some distance below the gum line. The carrier and gutta-percha mass are now heated until the latter is quite plastic, the clamp is adjusted upon the adjoining teeth, the cotton rolls are applied, the saliva ejector is placed in the patient's mouth, the root is dried with small pellets of absorbent cotton, and then cleansed with bichlorid, I to 250, and dried





FIG. 9.

with a blast of warm air. A small pellet of cotton is dipped into eucalyptol compound (Lily), and the root cavity is moistened with it. metallic carrier and soft gutta-percha is now grasped with the thumb and middle finger, the three projecting posts are carefully seated into their respective canals, whereupon a firm and directly downward pressure is exerted against the rivet, which protrudes from the improvised carrier. The pressure is continued until the gutta-percha has hardened, then by means of flat and round warm burnishers the excess of gutta-percha is forced up close to the root with a downward pressure. The effect of this, as one can readily see, will be a dislodgment of the gum tissue from around the root, exposing all parts which must be subsequently beveled to obtain the desired result. There now remains the task of further building up gutta-percha upon the metal carrier, so that quite a respectable looking and serviceable crown is produced, which is held in position by the rivet soldered to the oral side or morsal plane of the carrier. This part of the work being completed the patient is dismissed. (Fig. 9.)

At the next sitting the metal carrier within and the improvised guttapercha crown are removed, and the gum will be found a considerable distance away from the tooth, allowing the beveling process to be carried on and completed without lacerating the gum tissue to any extent. To determine the extent of the oblique angle of the bevel, we must first determine the direction of stress, and must also take into consideration the most broken-down side of the tooth involved.



In the case of the right lower first molar the direction of greatest stress will be found linguo-mesio-distally and disto-mesio-facially, and if we compute these directions we will obtain as a result a latero-rotary stress; hence, the angle of beveling should be no greater than 120 to 135 degrees; that is, if we assume the gingiva surrounding the tooth to be a flat surface, then that surface should form an oblique angle from 120 to 130 degrees, with the bevel of the root at that particular point or line. Neither should the bevels of the various surfaces merge into one another. On the contrary, a sharp line of demarcation should determine the end



FIG. 10.



FIG.II.

of one surface bevel from the beginning of the next surface bevel. All walls of the root, except the one broken down below the gum line, must be subjected to this treatment. The latter wall is taken care of in the following manner: With the smallest carborundum trimming stones held in the contra angle handpiece, we smooth the broken-down wall mesiodistally, if it be the distal wall of the root, and disto-mesially, if it be the mesial wall of the root, until an angle of about 135 to 150 degrees has been created between that wall and the adjoining gum tissue line, depending for resistance to stress rather on the peculiar gable-like formation of the pulp chamber floor than upon the oblique angle of the root wall at that point. (Fig. 10.) The bevel spoken of is best made with the aid of carborundum disks and very small butt-end finishing burs (file cut), to be followed by small carborundum points in the contra angle handpiece, and subsequently by sandpaper and cuttle fish disks.

Obtaining Impressions of Root End. The root is cleared of any grit or sand which may have been deposited, and a piece of German silver plate (gauge 27) is cut to conform in size and circumferential outline with the area and circumferential outline of the root. A piece of brass rod

(gauge 8), ½ to 5/8 of an inch in length, is soldered to the center of the German silver plate with a small piece of silver solder, forming an effective tray with a handle. (Fig. 11.) The labial and lingual portions



of the metal tray are bent downward to closely approximate the gum line around the root. With a No. 3 round bur four holes are drilled at the four respective corners of the metal tray, and countersunk upon the morsal surface of it. A piece of 16-gauge iridio-platinum post, of a length which will permit it to go half way into the distal canal and rise to the morsal plane of the root, is inserted into the distal canal of the root, while the mesial ones take a post of the same metal 18-gauge, also threaded. (Fig. 12.)

The three pieces of wire or posts are now removed, and the coronal part of each is so bent that they will converge to a common center (Fig.



12), and they are replaced into the root. A number of small cones of Taggart inlay wax are softened in hot water and placed upon the little tray; with a hot spatula they are merged into one another, and by means of hot instruments the mass is so distributed that it will assume a shape best adapted for an impression of the root cavity and root. (Fig. 13.) The tray carrying the wax is now placed upon the root and forced down with a firm pressure until the wax extends to within 1-64th of an inch of the gum. It is held down until the wax has hardened somewhat, when a stream of ice water is directed upon it; the tray now carrying the wax and threaded posts, and giving us in the wax a perfect impression of the root cavity and root, may now be removed without fear of distortion. (Fig. 14.) The surplus is carved away with a sharp lance, and if more wax be required at any point, it may be added, and the whole replaced for a second fitting. This is kept up until the operator secures the desired result, when the tray, plus wax, plus posts, is put into a glass of ice water for a few minutes.

The root is washed clean with a spray of warm water, a little more gutta-percha is added to the root surface circumference of the improvised gutta-percha crown. The crown is again heated until the mass becomes plastic, the root cavity and circumference is moistened with



eucalyptol compound (Lily), the crown is again forced down into and around the root, and the patient is dismissed.

Easting the Root End Inlay.

On examining the tray, carrying the wax and posts, and giving us the impression of the root end, it will be found that the wax has forced its way through the four small countersunk holes provided

in the four corners of the tray. These little cones of wax are now carefully removed, and the holes are cleared of the wax by means of narrow screw-driver-shaped instruments made of an old bur or a very narrow chisel. The wax will then separate from the tray. The sprue wire is attached to the post carrying the inlay, which is subsequently invested







FIG. 15.

FIG. 16.

into the Taggart flask, and the wax is carefully burned out. The flask is then placed in the Taggart machine and the inlay is cast. (Fig. 15.) A 7 per cent. platinum alloy with pure gold is best for this purpose. This is made by melting 446½ grains of pure gold in a carbon crucible, and feeding into that while it is kept at a boiling point 33½ grains of platinum rolled exceedingly thin, and cut into very narrow strips. This procedure has been carefully outlined in a previous article of this series. It is best to use for this purpose platinum which contains at least 5 per cent. of iridium, bearing in mind the fact that we are working for the distal part of the mouth with an increase of stress, and consequently desired increase of resistance to this stress.

The cast inlay is removed from the investment, thrown into hydrofluoric acid in order to remove all traces of silicate, then into a sodium bicarbonate bath to neutralize the acid. The surplus bulk of gold is removed. Part of the sprue, however, is allowed to remain on the inlay to serve as a necessary guide when the impression is taken.

At the next sitting the inlay is placed in and around the root, and if all the technique outlined above has been accurately followed, it will be found to fit to the satisfaction of an exacting operator. The wax bite is obtained with the inlay in position, and a plaster impression is taken of the entire side of the arch involved. Models are prepared and mounted upon an anatomical articulator. The inlay, of course, will be found in



position upon the plaster model. The sprue left thereon is removed, and the whole of the morsal surface is made smooth with the aid of small stones and fine files. A small rectangular-shaped depression is ground into the center of the inlay to facilitate the final seating of the crown upon it. (Fig. 16.) A tooth somewhat larger than the size required is selected, preferably an English tube tooth or a Davis crown, and it is ground into place disregarding the position of the hole for retention of the post or the occlusion, taking particular pains at this time to properly restore labial, lingual, distal and mesial contour.

Shaving the Crown.

Not enough care has heretofore been given to properly restore the mesial and distal contour of the crown, not considering the points of contact, but rather the walls of the crown, which, with the opposing walls of the adjoining crowns, go to form what is known as the



F/G. 17.

interdental space, and which space, under normal conditions, is meant to be occupied fully or in part, as the case may be, by gum tissue. This gum tissue moves in undulating waves during the process of mastication; the movements are labio-lingually, linguo-labially, mesio-distally, distomesially, and with all the foregoing always morsally, so that the movements are really labio-linguo morsally, linguo-labio morsally, mesio-disto morsally, and disto-mesio morsally; thus it will be seen that the termination of the movement, or rather the point of direction of the maximum movement of the gum tissue at the interdental space is morsally. If this gum tissue in its usual excursions into the various directions indicated, strikes an obstruction in the shape of an improperly contoured wall, it becomes irritated to an extent that will bring about an ever increasing hypertrophy, the termination of which will be disastrous to the patient in more ways than one. The writer has seen crowns loosen from the roots by this hypertrophic force, which, by the way, is the kindliest manner Nature has of expressing her disapproval of a badly constructed crown.

If the height of the space permits the placing of a porcelain crown, 3-16 of an inch in height or over, the simple method of beveling the



crown gingivo-mesio-linguo distally with a differentiated bevel, as described in a previous section of this series, is resorted to (Fig. 17), not forgetting that on the facial side the tooth is ground to approximate the inlay, while from the lingual, distal and mesial side, as well as from the inlay surface of the crown, enough bulk is removed to allow for a double layer of Platchek wax. If, however, the space only permits of the placing of a porcelain crown less than 3-16 of an inch in height, a different method of grinding must be resorted to in order to gain both retention between crown and inlay, and conservation of strength for the porcelain.

After grinding and beveling the former crown, that is, the one 3-16

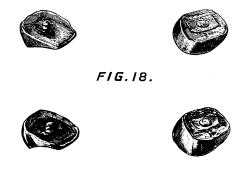


FIG. 19.

of an inch in height or higher, a small piece of threaded iridio-platinum post is placed into the retaining cavity of the crown, which has been moistened with water; a drop of Taggart wax is allowed to fall from a hot spatula on to the small part of the post protruding from the retaining cavity; more wax is added in the same manner until all of the inlay surface of the crown is covered with it. The porcelain tooth now carrying the post and wax is placed upon the inlay seated on the model, and care is taken to force the piece down upon the root inlay, so that the facial side of the tooth touches the wax, no gold intervening.

The mass is chilled with a spray of ice water, and the tooth, post and wax are raised from off the inlay; then by careful manipulation the crown is removed from the wax, leaving the post fast in the latter. The crown is dipped into ice water and replaced upon the post. With a hot spatula the wax is led down and around the bevel of the crown, and if any deficiency exists more wax is added at that point. The piece is again placed upon the inlay and forced down, and with flat right and left burnishers the wax is so finished that a slight depression is left along the mesio-



linguo-distal border of the inlay and the wax. The finished waxed porcelain crown is again removed from its supporting inlay base and thrown into ice water for a few minutes. The porcelain crown will come away easily from its waxed post-carrying base (Fig. 18), into the lingual border of which the sprue wire is now placed. The whole is invested in the Taggart flask and investment. After the latter has set the wax is slowly burned out and the flask is allowed to cool down, then placed in the







FIG. 20.

FIG. 21.

Taggart machine and the crown base is cast, using the same alloy that was used for casting the root inlay (Fig. 19). The procedure of cleansing in the hydrofluoric acid bath, and of neutralizing in the sodium bicarbonate solution is followed. The crown is placed upon the post and will seat itself into the inlay which, after the surplus button and sprue are removed, is placed upon its female receptacle or root support. With hard wax the two inlays are sealed together, allowing the wax to reach around and along the mesio-linguo-distal space provided for it. 20.) The porcelain tooth is removed and the root inlay, now carrying its supplementary tooth factor, is loosened from its moorings, within the model, and the two are invested in the refractory compound used in our soldering operations, the mass is allowed to harden, the wax is boiled out, the space along the border is fluxed, and the two inlays are joined into one by means of small pieces of 22k. plate gold. The soldered piece is allowed to cool down before it is freed from the investment; it is then thrown into a hydrochloric acid bath, where it remains for ten to fifteen minutes, when it is removed and thoroughly washed in warm water and soap.

The one inlay, now consisting of the two, is replaced upon the model and the porcelain tooth is seated. The articular is then closed to note the



points that must be ground to procure the proper occlusion. When this has been obtained, the porcelain tooth is polished, then cemented into place upon the inlay, and the piece is finished with sandpaper, coarse cuttlefish and fine crocus disks, and the crown is ready to be set in the patient's mouth. (Fig. 21.)



FIG. 22.

Method for Short Bite. The method of grinding in a short porcelain crown, that is, one shorter than the required 3-16 of an inch or over, is quite different from the one described above. It must be apparent that one may expect but little retention and contact surface from



FIG. 24.

a post less than ½ of an inch, or even ½ of an inch in length, and also that there is but one way of increasing the contact surface between the porcelain and gold, and that is by bringing the gold up around the mesiolinguo-distal sides of it, not in the shape of a bevel, but in the shape of a wall. With that end in view, a channel is ground at the facial third in the mesial and distal surfaces of the crown to a depth of 3-32 of an inch, while the mesial, lingual and distal surfaces of the porcelain are reduced in bulk about 3-64 of an inch (Fig. 22), which bulk is then restored with wax, the latter also filling up the channels; and so a wax inlay is made for the porcelain crown, which inlay must carry the threaded



iridio-platinum post, and must cover and so surround all but the labial and morsal surfaces of the porcelain, that the latter will, while seating itself upon the post, dove-tail into the wax. (Fig. 23.) The same process of casting with the aid of the Taggart casting investment and machine is followed to obtain a desirable result. (Fig. 24.) Also the same process of cleansing the cast piece, and joining the inlays by means of soldering them together with 22k. gold, and finally the same process of occluding and





FIG. 25.

FIG. 26.

finishing the piece with the necessary disks, and the crown is ready for cementation. (Figs. 25 and 26.)

Method of Setting the Crown. The finished crown is tried in the mouth, and upon being found satisfactory, preparations are made to set it with oxyphosphate. All appliances, such as clamps, napkins, cotton rolls, cotton pellets, cement slabs, spatula, tweezers and Jiffy cement tubes, as

well as all other accessories, must be on hand before the patient is put to any inconvenience.

The improvised gutta-percha crown is removed from the root, and a liberal amount of bichlorid, I to 250, is allowed to flow into and over it. This is followed up with an ordinary water bath.

The clamp is adjusted upon the adjoining tooth distally to the root, and the cotton rolls are applied. The root is dried first with pellets of cotton, then with a blast of warm air. A pledget of cotton is dipped into alcohol, and the root cavity and its outer surfaces are thoroughly washed with it: another blast of hot air of longer duration and the cotton rolls are changed. The patient's head is tilted to the side opposite to the one which we are operating, the saliva ejector is placed into the mouth, and a large cotton pledget is placed into, and about, the root to more effectually exclude the moisture.



The cement is now thoroughly spatulated to a thick, creamy mass; the Jiffy tube is filled and the root surface of the slightly heated crown is covered with a thin layer of the mix. The cotton pledget is removed from the root and the contents of the Jiffy tube are expelled from the tube into the three canals of the root cavity.

The crown is carefully placed into the root and gently, but firmly, seated with a directly downward pressure, which must be sustained until the oxyphosphate has begun to crystallize.

The cotton rolls are changed from time to time. The saliva ejector is placed to insure a dry field of operation.

In cases of extremely sensitive gum tissues, it is advisable to sear the gum surrounding the root with the electric cautery before cementation, particularly that part of the gingiva which abuts the broken-down wall of the root.

When the cement has crystallized the saliva ejector, cotton rolls and clamps are removed, the surplus cement is displaced, the area of operation is sprayed with fairly hot water, the parts are subjected to a brisk finger massage for the purpose of circulatory stimulation, and the patient is dismissed.





President's Address.

By Alfred P. Rogers.

"Happy are they who can hear their detractions and put them to mending."

Shakespeare.

Read before the American Society of Orthodontists at Boston, September, 1911.

In electing me President of this Society, you have given me the privilege of welcoming you to Boston; you have given me the opportunity of attempting something for the welfare of this Society. For this privilege and opportunity I wish to thank you.

If there is any virtue in this office, other than to conduct the meetings through the routine of business, it seems to me that it must be in attempting something for the Society that will prove of lasting benefit; something that will lend itself to the advancement of the cause; something, perhaps, that will make us more loyal to orthodontia and lead us into paths that will dominate us because of the truth that we shall find therein.

It is strange that we rarely ever accomplish precisely those things which we so often plan, after a flash of insight has revealed to us those blessings that might be ours for the effort. We live upon resolves that continue in succession until the end and few of us accomplish the smallest part of those things that we desire. This is needlessly so. Even, if sometimes true in our social life, it should not be true also in our professional. Therefore, my desire to-day is to plan with you some way in which we, as professional men, and as a society, may realize some of our ambitions.

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A finely organized, efficient body of men, working in harmony with one grand object, free from professional jealousy, personal aggrandisement and narrow prejudices, is what this Society should strive to be.

From my study of the present conditions, and from what I have been able to gather by peering into the dimness of the future, I can readily see that we are approaching a crisis. If you will pause and reflect a moment, I think that you will indorse my feelings in this matter. Change must come with the years. Just as each generation must interpret its facts of life for itself, and alter conditions to meet the needs, so also must we, as the years of our growth succeed each other, alter our conditions to meet the individual and society needs. It will be the course of wisdom. I believe, if we can exert the power of deciding, early, what direction the activities of this Society will take; whether or not we shall remain as we are, or masterfully direct the course of the Society to meet the new conditions. It may be difficult, but it can be done, and it is singularly well worth trying. Our thinking and our planning must be kept in living contact with the world progress of our profession, and new conditions of thought and conduct must call for new activities in the individual and in the society. The present epoch with us may be aptly compared to the young man just entering the activities of manhood, -if wise, he will measure conditions and equip himself to meet them. What the individual of this Society makes of his opportunity speaks well or ill for the future of this Society. If the individual member raises his tone, the Society will respond. I am sure that these considerations have at various times occurred to you, and that you are already in active sympathy with me. I hope that the result of your experience will correspond directly with my own, for I must confess, were it not for this hope, I should proceed with apprehension, fearing that possibly I might not be fully understood, or suspicious that some might feel that I had taken too much upon myself, or, that my efforts might prove absolutely ineffectual; but, feeling that I have at least that share of your sympathy which I crave, I shall close my eyes to these negative suggestions.

What I shall attempt to say has a bearing, not alone upon the technical processes of our work, but upon the general bearing of every individual. The logical consequences should be a general quickening of those forces that are behind all our efforts, individually and collectively. Should my remarks have the flavor of criticism, I trust that you will be mindful of its nature, for it is not my intention to set myself in judgment; if critical at all, I wish it rather to be considered in the light of creative criticism.



It has been said that the artist himself will do better work in proportion as he becomes his own most serious critic. Therefore, let us turn our eyes upon ourselves and indulge in a little introspection.

Are we efficient—I mean efficiency in its highest sense? Are we handicapped in our work by Efficiency. conditions that might, by the use of a little thought, plus the exercise of a little will power, be overcome? Are not some of our partial or complete failures due to the lack of the perception of those qualities in us that might be made consciously our own? Let us think over what we have attempted during the past year. Do we hear that small voice chiding us because in some slight matters we have been negligent? Are we not mindful that times without number we have let slip details that now mournfully remind us that we have failed to do the best that was in us, and are we not startled when we are reminded that slackness soon becomes a habit, and that we are robbed of those splendid sensations that come to him who feels that he has done well? I believe it a worthy office to call attention to those resources that we may be unmindful of; those riches that lie undeveloped within us, which, when truly discovered, would place upon our heads the silver crown of achievement.

Che Influence of Kabit.

It is most important, in trying to reach a higher plane of accomplishment, that we should realize the important place which habit holds in all our efforts. Psychology helps us greatly in understanding these

conditions. Nothing to my mind helps a man gain the mastery over himself more completely than a careful study and comprehension of the psychology of habit. When the term "habit" is used, the mind usually conceives the idea of evil or bad habits, but beneficent habits are those I wish you to think of at this time.

Because of the plasticity of the brain, we are creatures of habit. Everything we do, from earliest childhood until old age, becomes easier of accomplishment because of the character of our nervous tissue. If it were not so, how difficult and unprofitable would our every effort become. When full realization of this fact comes upon us, how forcefully are we impressed with the importance of correct manipulation, correct thinking, and acting.

Prof. James, in his chapter on "Habit," lays the whole matter clearly before us. Anyone, after reading this chapter, and not immediately improving his condition, is surely in a worse than hopeless situation. We are often of the opinion that habits of the beneficent kind, cannot be formed later in life, but this to my mind is an error. Of course, the longer one's efforts are delayed the harder and more bitter



will the fight become, but with a determined and unflinching will, won-derful revolutions may be accomplished. Let me read you some extracts from the work of Prof. James, to whom I have just referred, for his words are so clear and his deductions so logical that I feel that my purpose will be far better fulfilled if I give you his words of authority:

"An acquired habit, from the physiological point of view, is nothing but a new pathway of discharge formed in the brain, by which certain

incoming currents ever after tend to escape

"Plasticity, then, in the wide sense of the word, means the possession of a structure weak enough to yield to an influence, but strong enough not to yield all at once. Each relatively stable phase of equilibrium in such a structure is marked by what we may call a new set of habits. Organic matter, especially nervous tissue, seems endowed with a very extraordinary degree of plasticity of this sort, so that we may, without hesitation, lay down as our first proposition the following: that the phenomena of habit in living beings are due to the plasticity of the organic materials of which their bodies are composed.

"Habits Are Due to Pathways Through the Nerve-Centres."

"If habits are due to the plasticity of materials to outward agents, we can immediately see to what outward influences, if to any, the brain matter is plastic. Not to mechanical pressures, not to thermal changes, not to any of the forces to which all the other organs of our body are exposed; for, as Nature has so blanketed and wrapped the brain about that, the only impressions that can be made upon it are through the blood. on the one hand, and the sensory nerve-roots on the other; and it is to the infinitely attenuated currents that pour in through these latter channels that the hemispherical cortex shows itself to be so peculiarly susceptible. The currents, once in, must find a way out. In getting out they leave their traces in the paths which they take. The only thing they can do, in short, is to deepen old paths or to make new ones; and the whole plasticity of the brain sums itself up in two words when we call it an organ in which currents pouring in from the sense-organs make, with extreme facility, paths which do not easily disappear. For, of course, a simple habit, like every other nervous event—the habit of snuffling, for example, or of putting one's hands into one's pockets, or of biting one's nails—is, mechanically, nothing but a reflex discharge; and its anatomical sub-stratum must be a path in the system. The most complex habits, as we shall presently see more fully, are, from the same point of view, nothing but connected discharges in the nerve-centres, due to the presence there of systems of reflex paths, so organized as to wake each other up successively—the impression produced by one muscular contraction serving as a stimulus to provoke the next, until a final impression inhibits the process and closes the chain.

"Practical Effects of Habit. First, habit simplifies our movements,

makes them accurate, and diminishes fatigue.

"Man is born with a tendency to do more things than he has readymade arrangements for in his nerve-centres. Most of the performances of other animals are automatic. But in him the number of them is so



enormous that most of them must be the fruit of painful study. If practice did not make perfect, nor habit economize the expense of nervous and muscular energy, he would be in a sorry plight.

"Secondly, habit diminishes the conscious attention with which our acts are performed.

"Habit is thus the enormous fly-wheel of society, its most precious conservative agent. It alone is what keeps us all within the bounds of ordinance, and saves the children of fortune from the envious uprisings of the poor. It alone prevents the hardest and most repulsive walks of life from being deserted by those brought up to tread therein. It keeps the fisherman and the deck-hand at sea through the winter; it holds the miner in his darkness, and nails the countryman to his log-cabin and his lonely farm through all the months of snow; it protects us from invasion by the natives of the desert and the frozen zone. It dooms us all to fight out the battle of life upon the lines of our nurture or our early choice, and to make the best of a pursuit that disagrees, because there is no other for which we are fitted, and it is too late to begin again. It keeps different social strata from mixing. Already at the age of twenty-five you see the professional mannerism settling down on the young commercial traveler, on the young doctor, on the young minister, on the young counsellor-atlaw. You see the little lines of cleavage running through the character, the tricks of thought, the prejudices, the ways of the 'shop,' in a word, from which the man can by and by no more escape than his coat-sleeve can suddenly fall into a new set of folds

"The great thing, then, in all education, is to make our nervous system our ally instead of our enemy. It is to fund and capitalize our acquisitions, and live at ease upon the interest of the fund. For this we must make automatic and habitual, as early as possible, as many useful actions as we can, and guard against the growing into ways that are likely to be disadvantageous to us, as we should guard against the plague. The more of the details of our daily life we can hand over to the effortless custody of automatism, the more our higher powers of mind will be set free for their own proper work. There is no more miserable human being than one in whom nothing is habitual but indecision, and for whom the lighting of every cigar, the drinking of every cup, the time of rising and going to bed every day, and the beginning of every bit of work, are subjects of express volitional deliberation. Full half the time of such a man goes to the deciding, or regretting, of matters which ought to be so ingrained in him as practically not to exist for his consciousness at all. If there be such daily duties not yet ingrained in any one of my readers, let him begin this very hour to set the matter right."

"Two great maxims emerge from his treatment. The first is that in the acquisition of a new habit, or the leaving off of an old one, we must take care to launch ourselves with as strong and decided an initiative as possible. Accumulate all the possible circumstances which shall re-enforce the right motives; put yourself assiduously in conditions that encourage the new way . . ."

"The second maxim is: Never suffer an exception to occur till the new habit is securely rooted in your life."

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"In the main, however, all expert opinion would agree that abrupt acquisition of the new habit is the best way, if there be a real possibility of carrying it out. We must be careful not to give the will so stiff a task as to insure its defeat at the very outset; but, provided one can stand it, a sharp period of suffering, and then a free time, is the best thing to aim at."

"A third maxim may be added to the preceding pair: Seize the very first possible opportunity to act on every resolution you make, and on every emotional prompting you may experience in the direction of the habits you aspire to gain. It is not in the moment of their forming, but in the moment of their producing motor effects, that resolves and aspirations communicate the new 'set' to the brain."

"The actual presence of the practical opportunity alone furnishes the fulcrum upon which the lever can rest, by means of which the moral will may multiply its strength, and raise itself aloft. He who has no solid ground to press against will never get beyond the stage of empty

gesture-making.'

"Just as, if we let our emotions evaporate, they get into a way of evaporating, so there is reason to suppose that if we often flinch from making an effort, before we know it the effort-making capacity will be gone; and that, if we suffer the wandering of our attention, presently it will wander all the time. Attention and effort are, as we shall see later, but two names for the same psychic fact. To what brain-processes they correspond we do not know. The strongest reason for believing that they do depend on brain-processes at all, and are not pure acts of the spirit, is just this fact, that they seem in some degree subject to the law of habit, which is a material law. As a final practical maxim, relative to these habits of the will, we may, then, offer something like this: Keep the faculty of effort alive in you by a little gratuitous exercise every day."

"So with the man who has daily inured himself to habits of concentrated attention and self-denial in unnecessary things. He will stand like a tower when everything rocks around him, and when his softer fellowmortals are winnowed like chaff in the blast."

"He can, with perfect certainty, count on waking up some fine morning, to find himself one of the competent ones of his generation, in whatever pursuit he may have singled out. Silently, between all the details of his business, the power of judging in all that class of matter will have built itself up within him as a possession that will never pass away."

All this applies not only to the motor habit but to those of thinking and feeling as well. I think you will realize the importance of all of this to us. Our work is so intricate that the habits of feeling, thinking and doing make us or mar us, and we become efficient or inefficient, so also will our grand work be stamped as worthy or worthless.

If we become proficient in the application of these principles to our daily work, we shall become the more competent in applying these same principles to the correction of habits of an evil nature as we meet them in the young who come under our care. No one knows better than we



the havoc that may be wrought to the structural growth in young children, and no one should more quickly recognize the good that comes from their detection and successful treatment. Let us grasp these truths and reflect upon them, that we may allow them to influence our conduct unto the last, that the fulfilment of our efforts may add blessings to future generations.

Now, what is the situation with us? I asked you in the beginning if you felt we were truly efficient. I ask you again, if after all that has been said, you do not think we can raise our efficiency a little higher? If you are able to recall those moments during the course of your life when you have striven to gain an ideal, you will remember that some zeal possessed you; some overpowering thought urged you on until from point to point you rose to greater efficiency. I feel at this moment that there is among you that kindling zeal that will carry each member of this society to a plane of greater accomplishment.

Restriction of Membership.

We, for the most part, believe that our highest ideals are reached by devoting our time and efforts to the accomplishment of our specialty. There is not a man of experience here who does not believe

that special effort means special achievement, and at least every one believes that this society should be as honest in its representation of the special as the individual. It is my earnest desire, then, that we shall now declare ourselves in league with the highest, and that this Society shall so change its constitution and by-laws that there can be no doubt about its position. It is my firm belief that no member will place himself in opposition to true progress by any promptings of a selfish nature.

Some, in times past, have felt that our doors should be flung wider open, but this Society does not exist that the many may receive a little benefit by gaining membership, but that the few may have opportunity and inspiration to carry the science higher, that in the end the multitude may have an ideal towards which to bend their efforts. Do not misunderstand me—I do not seek to establish an aristocracy in orthodontia, but rather an academy, which, as the years go past, shall gather unto itself every advantage that shall make for the advancement of orthodontia. I, therefore, urge that the following changes be made in the constitution and by-laws:

In Article 3, Section 1, the last clause shall be omitted. The article shall then read: "No person shall be eligible for active membership except those engaged in the exclusive practice of orthodontia."

I would suggest also that Section 2 be reconsidered by this Society, and some decision arrived at as to the advisability of continuing the



admission of honorary members. This section, I believe, if not omitted entirely, should in some way be modified.

That, in Article 4, Section 1, lines 8 and 9 be reconstructed so as to read: "and report its decision to the Society during the next annual session." The article will then read: "All names of candidates for membership shall upon the recommendation of two active members be presented to the Board of Censors, which shall pass upon the eligibility of said candidates and report its decision to the Society during the next annual session when the active members shall proceed to vote by written ballot, a two-thirds vote of all active members present being necessary to elect."

I would also recommend that Section 4 in the By-laws be revised in such a way that papers shall be more carefully passed upon before they are admitted to be read before the Society or for publication.

Ethical Relations with Specialists and Practitioners.

I wish to recommend that attention shall be given to the ethical relations existing not only between the members of our own society, but with those of the general practitioner as well. Some have been deeply troubled and perplexed over mal-ad-

justments and misunderstandings involving questions of an ethical nature. The splendid success of our work and its prompt recognition by the laiety, in contrast to the stubborn acceptance by a few of the older general practitioners has, in some few cases, given rise to unpleasant experiences, which, if the right spirit prevailed, would be accepted as in the course of true progress. Selfishness, I am sorry to say, is the cause of a form of criticism, and is anything but pleasant. In view of the fact that the modern growth of our work has a tendency to revise many traditions, it is not surprising, I suppose, that our progress should give grave concern to a few who are either unwilling or unable to accept the inevitable extension of the orthodontist's influence. It not infrequently happens that children are referred to the orthodontist, not by the family dentist but by the family physician, or the rhinologist, or by the parents and friends of the children who have been, or are, under treatment. In some cases such as this, it happens that the dentist has taken exception. When this has happened, I have observed that it is usually in the case of the man who has held himself aloof from the orthodontist and his work and whose mind is not open to the benefits of special work. These cases are fortunately few, and the result is identical with that which follows in any other profession where attempts are made either from selfish or sincere motives to stand in the path of eternal progress.

In considering the intercourse which must become more and more intimate, as the magnitude of our work grows, ethical principles must



be well understood. The truest conception of ethical relations between men is, "Do unto others as you would have them do unto you." I have no doubt that most of us realize the necessity of the practical acceptance of this truth, but are often deterred by the stress of work, and forced to neglect by the paralyzing influence of tired nerves. Nevertheless, we must look at the matter fairly and possess ourselves with the idea that we must in every case possible give due consideration to the other man; acknowledge the reference of patients promptly, and make efforts for a mutual understanding with the family dentist, that shall allow him an opportunity to administer whatever services become necessary. The same ideas hold true in regard to the interchange of patients taking place between the orthodontists themselves. Care must be taken by the one referring to notify the man of his choice before the arrival of the patient if possible, and, in those cases where it is necessary, the models of the case should be forwarded as early as possible.

Interference by Head Master and School Mistress.

Steps should be taken to acquaint the preparatory schools with the disastrous effects often caused by the thoughtless interference with the orthodontist's work. The schoolmaster, as a rule, knows little or nothing about the work of the orthodontist

from a scientific point of view. He looks upon the whole idea as an undesirable proceeding, unless perchance he may have a child of his own who may be in serious need of treatment. It is annoying to him to have the boys leave school. In some instances, everything has been done to limit the pupil's visits, even appeals to the parent that the child's scholarship is interfered with, on account of time lost in weekly visits. Some of our men have been so handicapped by this attitude of the schoolmaster that the cases have resulted in needless failure and needless suffering on the part of the patient. There never was a situation so difficult, but that some way could be found to relieve it. Although I realize that this condition is, in many cases, a discouraging one, I believe that harmony can be procured in all but a few exceptions. The preparatory schoolmasters with whom I have come in personal contact have, for the most part, been fair and generous when they have become acquainted with the scope of our work, and are led to see what the skilful orthodontist can accomplish for the young under their care. Of course, we on our part must not forget that the schoolmaster is in a great measure responsible for the boys and girls under his care, and we should endeavor to make our demands on the pupils' time as limited, and as convenient, with relation to the school schedule, as possible. The master should know the dangers likely to follow interference on their part and at the same time be made conversant with the nature and scope of our efforts. He must



not be allowed to think that we are in the least selfish in this matter, or that financial considerations prompt us. There are few of us, if we were to consult our own feelings in the matter, who would not much rather not accept patients who are, or expect soon to be, students in the average preparatory school. It is a rule with but few exceptions, I believe, that the orthodontist is devoted to his patient's welfare, and his most earnest desire is that the final results shall be worthy of an artist. Therefore, interference which makes these results impossible is, indeed, hard to bear. The matter should be tactfully adjusted for pedagogic prejudice is hard to overcome. Let us first try to brush aside the misconceptions that arise, then show that our attitude is one of unselfish interest, prompted by loyalty to the cause we serve.

The First school of Orthodontia.

The subject which involves all other subjects, the one that underlies the future theory and practice of orthodontia, I wish next to place before you as a topic for your reflection. It seems at variance with all the principles that should be possessed by thought-

ful and mature minds that the fundamental idea of institutional education should so long lie dormant in this society. I am not a little puzzled when I reflect upon this condition. It seems untenable that slight early differences of opinion should in any way affect the attitude of any member toward an institution of such remarkable achievement as the first school of orthodontia. It is my hope that this society henceforth shall lend its support and encouragement to the establishment of the first school upon a permanent and sufficient basis. It is upon the educational idea that our whole structure is reared. Future scientific conceptions, the development of manipulative power, the acquisition of knowledge of all kinds pertaining to our science must and shall have a permanent and beautiful home, where our progress may be advantageously measured, and where those coming after may receive the fruits of the experience of those who have passed before them; where young men shall continue to receive that inspiration which has been and continues to be the foundation of many successful careers.

Discussion of President's Address.

Mr. Chairman and Gentlemen: It gives me great pleasure to be considered by your censors worthy to discuss this very interesting paper by your President, who with characteristic frankness has asked me to take a free rein in its discussion. Like all good presidents he is desirous, if it be possible, to do something for his society that will make its members more



loyal to orthodontia. I suppose by that that you are not as loyal as you should be. How few of us are really downright loyal to anything! We live in a complex age and a comparatively few tried men are striving to better existing conditions. Not only your society, but every society should strive to be a finely organized efficient body of men, free from all that is mean and small. To emphasize this, your President quotes freely from the writings of Professor James, and in this way clearly puts before us the subject of efficiency and the psychology of habit. Think how many lives have been wrecked on the shoals of inefficiency! We cannot too often put before the young, and even the old, the lesson of efficiency and habit.

Naturally your President assumes that your highest ideals are best reached by devoting your time and your efforts to the building up of your specialty.

To this end he recommends that a change be made in your constitution and by-laws so that no person shall be eligible to active membership except those engaged in the exclusive practice of orthodontia, and he further recommends that the membership made up in this way should lend its support and encouragement to the first school of orthodontia, meaning, I suppose, the Angle School of Orthodontia.

It is right here that I beg to avail myself of the privilege that he grants me and differ with him. It seems to me that your President's usual broadmindedness has been unduly influenced and restricted by his love for his specialty and his zeal for more real productive work on the part of the members of this Society.

Your society should rightly demand for membership men of distinction in the science of orthodontia. Not necessarily men who have taken practically an oath to practice orthodontia exclusively.

There are many able men to-day who are practising orthodontia safely and well in connection with general practice; men in our country towns and out of the way hamlets, caring for children afflicted with malocclusion, who could not possibly come to our great centers where the present orthodontia specialist finds his home.

I know some of these men, and I know some of the good work that they are doing in orthodontia and of their great interest in the science of malocclusion. Such men might want the benefit to be derived from membership in such a society as yours and they might, in their turn bring much that would be valuable to you.

Your doors should always remain open to such men. Had restrictions such as your President recommends obtained in any society of scholars, Professor James, whom your President so much admires, would have been obliged to remain an outsider, for he obtained his won-

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derful knowledge from following various channels of learning, no one of which led him to an academic degree. It is true he graduated from the Harvard Medical School with the degree of M. D., but that was at a time when the training required for the practice of medicine was quite different from what it is to-day.

Division of Fees Immoral.

On the question of the ethical relation between the general practitioner of dentistry and the specialist in orthodontia I have decided and strong views, especially so in regard to the division of fees. I hold it to be morally wrong for the general prac-

titioner to receive one cent of pay from the specialist, for a patient that he may have sent to the specialist, and the specialist who makes any such arrangement for the division of fees with the general practitioner should be expelled from membership in your body.

Post-graduate schools in orthodontia will surely rise and, together with the departments of orthodontia in our better established dental schools, will recruit the ranks of orthodontists, some of whom will devote their entire time to the practice of orthodontia, while others will, as many now do, make it a part of a general practice.

By all means restrict and guard your membership, but do it in a broad way befitting a liberal profession. Let us remember the cry of the Chambered Nautilus and apply its lesson to our every-day life.

"Build thee more stately mansions, O my soul,

As the swift seasons roll.

Leave thy low-vaulted past,

Let each new temple, nobler than the last

Shut thee from heaven with a dome more vast,

Till thou at length art free.

Leaving thine outgrown shell by Life's unresting sea."

I am greatly pleased and gratified at the President's address because, although we live many thousands of miles apart, he has dwelt upon many things I had in mind before coming here, of which the raising of the standard of our Society and the question of membership are the most important.

It appears to me that the point that he has brought out in relation to the Constitution and By-Laws is one worthy the attention of the Society and, in my belief, the rule should be so changed, and later even changed in a more radical manner.

One other point he dwelt upon, which I know from my own experience is well taken, as I have been very unfortunate indeed, is the attitude of the preparatory schools, especially in this section of the United States,



toward our patients. I have a great number of children who come to this section of the United States to obtain their education, and they come in different stages of treatment. In a very large percentage of these cases they have not been permitted to visit competent men in this vicinity, with the result that when they have returned home on their summer vacations their teeth have been found to be in a horrible condition. It has seemed to me that the Society might adopt some method of educating the heads of these preparatory schools, so that those who come a great distance might receive the attention which they need, and at the proper times. I do not know that I can at this time suggest the mode of procedure this Society might take, but probably a suggestion may be made by some member by which this difficulty may be obviated, and the children in the schools obtain the treatment which they require.

I do not feel competent to discuss this question as it should be discussed, but it is one which appeals to me—the relation of the orthodontist and the pub-

lic educator. In our schools in Toledo it is almost impossible to get the patient into the office during school hours, because of the attitude of the teachers, and the question has arisen in my mind whether it would be ethical on the part of the orthodontists to endeavor to place the work before the teachers of the schools in a meeting of the teachers, explaining what orthodontia is, what it has done, and what it is trying to do. I do not know whether it would be counted as advertising and be criticised, or whether it would be accepted as an advance step in the present movement of dental education. I think it is entirely possible, at a meeting of the teachers, to explain this matter, so that they will thoroughly understand it and so obliterate, in a measure, the feeling against orthodontia. I would like that matter discussed.

Another point is the relation of the orthodontist to the dentist—that part of the President's address strikes me very favorably. I find that a man in our town, who has the opportunity, looking at it from my standpoint, to do a great deal for orthodontia, feels that if a band is left on a tooth for a year that the tooth will be destroyed. He is a prophylactic man, and is an extremist. I believe it is sometimes necessary for the orthodontist to do his best to educate the dentist.

The fee of the orthodontist and the dentist, it seems to me, can be very amicably settled, if the dentist receive a fee for his services, for just what he does; that can be arranged between the orthodontist and the dentist. I have people who come from all over Ohio. It is almost impossible for them to come to me once a week, and it is therefore necessary to ask the dentist to take care of the patients between visits to me, and it is understood that the dentist is to receive a fee for the work that he does

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for the patients, under the direction of the attending orthodontist.

In regard to patients getting leave from school,

in Washington I have been, perhaps, a little differ-Dr. Hawley. ently situated from some others, on account of the great number of private schools there; very many of the patients receiving treatment in orthodontia are in them, and practically all announce that the pupils will not be released for dental attention during the school term. It has been understood that the filling of teeth must be done at home, and I had quite a little trouble when I first went to Washington. I think it is a question that must be settled personally at the beginning of the treatment. All of these schools have a chaperone, who is usually a very intelligent person, and if I cannot see the principal, I have approached the chaperone, explaining what this work is, its importance, and that it is entirely different from ordinary dental work. Where I have been able to do that I have had no trouble at all. I have placed the matter before them in such a way as to show them that this treatment will bring a great many people to Washington. Washington has many pupils from all over the South and West, from cities which have no specialist, and it is a matter that will be to the school's advantage if the pupils can be allowed to visit an orthodontist for treatment. Two of the largest private schools in Washington now look very kindly upon this matter and willingly give their pupils time for this work.

In the public schools I have had to deal with the parents, and through the parents with the teachers, and I have handled the matter in that way more successfully than any other.

In regard to fees, I presume Dr. Smith is not aware of the provision we have in our constitution, that was adopted some years ago in New York, against the dividing of fees. No person can hold his membership in this Society and give commissions or divide fees. The subject was thoroughly discussed at that time, and I think that none of us has changed his opinion.

There is a matter suggested by the paper that has occurred to me as a very important one, and that is the influence of habits, especially the habits of children up to 8 or 10 years old. A habit has, I think, a great deal more influence than we realize.

The habits that produce malocclusion are easily acquired, and I think we need to take a great deal of care not to produce other bad habits during treatment. Also, I have come to think it a serious matter to place appliances in the mouth, which break up the habits of mastication which the child has already acquired. It is difficult to produce proper habits of mastication; at least it does not seem easy with the present preparation



of food. If we place an appliance in the mouth for a year, which tends to break them up, it is not easy when the treatment is over for the child to take them up again; and I think it is a matter which should receive very careful consideration in the treatment of a case. For this reason also the treatment of a child's teeth should be as brief as possible, consistent with other considerations.

Dr. Rogers. ers have seemed in slight opposition to the things I recommended, yet I cannot help feeling that when the address is read carefully, you will all come to the conclusion that we agree quite thoroughly. Dr. Smith was impressed with the idea that, possibly, in recommending some of these things, I had assumed a narrower position than was my usual custom, but I think you will find that our recommendations are almost identical. If you read the paragraph in regard to specializing in orthodontia you will see that the idea is, that by limiting ourselves to this specialty, the value of orthodontia shall be greatly enhanced. I distinctly say that we should be in a position to shape an ideal towards which the multitude may strive.

The reason why I would like to have an academy, whose members are high-class specialists, is that as their work is given to the world, all those attempting orthodontia might have a more authentic guide than they have at the present time.

My idea in referring to the first School of Orthodontia is one of loyalty. There is no man who has attended this school who is sorry that he went there, and, with very few exceptions, the men who have attended have done good work in orthodontia. Therefore, I asked that we give the school our sympathy and support, because my feeling towards it is one of loyalty, and I cannot see wherein any man can take exception. There may be other efficient schools in orthodontia established in other parts of the world, therefore my idea is not in any way to narrow the influence of orthodontia or that of the Society at all, but to give emphasis to the idea of efficiency.

I realize that some general practitioners can do as good work as some so-called specialists; but I also say "If that man should devote himself to orthodontia, how much better work he could do!" It is being recognized by men of thought that orthodontia has an important place in this world, and that the work should be done well. I have known of too much suffering among the children not to wish the Society to get together and use all its influence toward good work.

You will find that most of the great discoverers in the world are men who have worked for years in a laboratory; they were not bothered by the outside world, and it seems to me that our work, as a society, could be better done by a nucleus, and then, if found sufficient, spread broadcast.

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Che Education of the Patient at the Chair.

G. R. Warner, M.D., D.D.S., Grand Junction, Colorado. Read before the Colorado State Dental Association.

There is an Indian legend which tells of a good spirit, who, wishing to benefit a young princess, led her into a ripe and golden cornfield. "See these ears of corn, my daughter; if thou wilt pluck them diligently they will turn to precious jewels; the richer the ear of corn, the brighter the gem. But thou mayest but once pass through the cornfield, and canst not return the same way." The maiden gladly accepted the offer. As she went on, many ripe and full ears of corn she found in her path; but she did not pluck them, always hoping to find better ones farther on. But presently the stems grew thinner, the ears poorer, with scarcely any grains of corn on them; further on they were blighted, and she did not think them worth picking. So, sorrowfully, she stood at the end of the field, for she could not go back the same way, regretting the loss of the golden ears she had overlooked and lost.

So with the dentist. Every day he has golden opportunities to fulfill the highest conception of his professional life, and he lets the chances slip by, hoping that the propaganda of public instruction and press education will teach his patients the things which he himself should impart to them and which he can impress upon their minds more effectually than anyone else.

We all know how intimate and friendly is the relation between patient and dentist. The very fact that a person is our patient is evidence that that person has confidence in us, and anything from our lips will have much more effect than if seen in the public press or heard from the lips of a lecturer.



Then, too, the act itself of our taking enough interest to impart knowledge to our patients increases their confidence in us and strengthens the friendly relations. It is evidence to them that we are interested in their welfare and are not serving them for the fee alone.

The opportunity, coupled with the needs of the patient, make it a plain duty for every dentist to educate his patients at the chair. And this opportunity and duty involve another duty—the duty of having the information to impart. It is, therefore, incumbent upon every dentist to educate himself broadly enough, not only to meet the needs of everyday practice in regard to his technical skill, but to discuss intelligently with his patients the methods of practice generally known, and to explain explicitly why he is using a certain method in a given case. He should be able to answer questions in regard to the physiology of the mouth as well as to general physiology and the relation of one to the other. He ought to be familiar with the different pathological conditions found in the mouth and to have the ability to describe them, and finally he must by all means instruct his patients in a plain and forceful manner in regard to the maintenance of a physiological condition of the oral cavity. would also be very useful to have a good knowledge of the history of dentistry, and by means of this interest a patient in the subject we finally wish to arrive at.

A general knowledge is presupposed and is quite as essential to us in educating our patients as the special knowledge which we *must* possess to some degree. Therefore, it behooves us to keep up to date along all lines and show ourselves to be broad-minded and alive.

Creatment of Children.

We all serve children, and if we pluck the golden ears of opportunity in their case they will become precious jewels indeed. The child's mind is both receptive and retentive, and we have the opportunity

to educate them in many matters not necessarily dental. And what we say to them must be said carefully and thoughtfully because of the receptiveness and retentiveness of this storehouse. Childhood is also the period in which the largest number of habits are formed, and it is our opportunity to aid in the formation of good habits, and what higher reward can we expect or wish than the knowledge that we have assisted, however slightly, in the formation of good habits among our young patients? This is a work that does not end at the chair, or in one generation. It goes on in ever-broadening circles, like the ripples on the smooth surface of a lake caused by the dropping of a pebble in the water.

In the case of children particularly, and with adults incidentally, as heretofore noted, the dentist has the opportunity of educating in many fields. And as he educates by example as well as precept, it is essential



that a dentist's deportment be above reproach, for he is educating by example unconsciously all the time. It is our opportunity to instill upon a child's mind the importance of meeting an engagement promptly. Let our example be right in this particular, and if for any good reason we keep the patient waiting, we should explain the reason and apologize for so doing.

It devolves upon the dentist, perhaps more than anyone else, to inculcate patience and fortitude, and we should do this by all possible gentleness, firmness and encouragement, being ever careful to keep well within the limit of the child's endurance.

When a child is given into our care, our duty does not end with the simple filling or regulating of the teeth. We should do everything possible to enlist that child's cooperation in making a beautiful, useful and permanent set of teeth and a clean and healthy oral cavity. We can explain to him in an interesting manner the uses of the teeth, the causes of decay, and we can tell them the best-known means of preserving the teeth from decay. In doing this it is necessary to actually demonstrate with a tooth brush in hand how to brush their teeth and mouth and how to use the other accessories of the mouth toilet. Then from time to time we should carefully examine his mouth and show him with a hand mirror wherein he has failed, and by having him again use the toilet articles, show him why he has failed.

It also falls largely to the dentist to tell the child what foods to eat and how to eat them. It is interesting, as well as instructive, to explain to children the process of digestion and assimilation. Through this the importance of mouth digestion, brought about by the thorough mastication of food, can be so forcefully impressed upon their minds that habits of thorough mastication will be formed that will cling to them throughout their lives.

It is frequently the dentist who discovers the mouth breather, and here is a large field for the education of parent as well as child. How easy, important, and even imperative, it is for a dentist to instruct his patient in this matter. A little timely advice and instruction with a young mouth breather may mean the saving of an otherwise ruined constitution.

What a simple matter for a dentist, as he is working for his young patient, to draw a picture of the ultimate effect of mouth breathing. What boy is there who would not be willing, and even anxious, to go through almost anything to be saved from being a weak "sissy-boy" among his fellows, and, instead, be a boy who could play baseball or football, or compete in track sports?

What girl is there who would not respond to the suggestion that she



would grow up into a dull, deaf, hatchet-faced woman; weak, pale, stoop-shouldered and generally unlovely, if she did not have the cause of her mouth-breathing removed and the effects already produced corrected?

Yes, gentlemen, it is our privilege, our opportunity, our duty, to instruct our patients at the chair. It is for us, as a noble and learned profession, to do all in our power for the upbuilding and elevation of the human race, morally, mentally and physically.

Of course, the major portion of our practice is with adults, and by far the largest proportion of these have not had the instruction in matters dental that they should have had. So we have here a large and prolific field for education at the chair.

Advantage in a Definite Plan of Instruction.

It is a simple matter for us to have a plan of instruction outlined for different classes of cases, and then to lead the conversation around to our plan in the manner that seems best at the time. Often the patient opens the way by asking questions; but some

patients do not ask questions and do not seem to have any particular interest in what we are doing. We should not fall into the error, however, of thinking that time is ill spent or lost if the patient does not seem as responsive as we think he should be. We never know what character of soil the seed is falling on, nor what the harvest will be. It is for us to pluck the golden ears of opportunity and trust that they will turn into the precious stones of healthy mouths and prolonged lives.

There are so many phases of this subject that it would be impossible to go into detail, but I wish to mention some things that occur to me as being of the most importance.

Without doubt, it is our first duty to instruct our patients in prophylaxis, and this is not a hard place to make a beginning, for while some people are interested in contact points, areas of immunity, pulp treatment, etc., a large number can be made interested in the subject of guarding against dental troubles. This subject appeals to them from two points of view; first, because of the pleasure and satisfaction of feeling that every surface of every tooth is perfectly clean and their whole mouth in a sanitary condition; secondly, because of the great probability of tooth decay being largely prevented. In other words, it is much easier to interest a patient in the preservation of a sound tooth than in the repairs of an unsound one.

So, educating our patients in the care of their teeth is a pleasant duty, because we know the good results accruing from such education, and because it is a dental subject that is interesting to the patient.

Fathers and mothers can be interested in the subject of their

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children's teeth, and a little talk on the importance of conserving their children's teeth will always find ready listeners. The subject of the first molar is one in regard to which most parents need some education. A little information about this important tooth may mean its salvation, where otherwise it might be lost, because "it came in where no other came out."

The parents of children can always be talked to about nasal stenosis and its effect upon the general health, as well as the oral cavity. A little timely advice upon this subject may save some children from the serious general, as well as local trouble, following the condition named. Along this same line we can help children through their parents by telling the parents something of orthodontia and its great possibilities.

It is unfortunate, but I believe it is true, that we do not always feel free to advise the woman expecting to bring a new life into the world. We could and should advise her about her diet during her pregnancy, and should tell her how to care for the baby's mouth, as well as the care of her own mouth, all the time. If mothers were more generally educated along these lines, more infants would come into the world healthy and fewer would go out prematurely.

The opinion is quite too general that one must expect to lose one's teeth with the oncoming of old age, and I do not know any more fitting subject for educating our adult patients about than this; and I might say pleasing, too, for very few would fail to be pleased by the idea that their teeth should and could serve them to their life's end, and all would welcome information from their dental adviser as to how to attain this most desirable condition.

Gentlemen, we are passing through the cornfield. Let us pick the golden ears of our opportunities in educating our patients, and we shall surely receive the jewels of having somewhat lightened human ills, of having even a little increased human happiness; of having helped, if only a trifle, to make the world better.





Colorado State Dental Society.

Discussion of Paper by Dr. Warner.

Mr. President and members of the Society: As Dr. W. C. Chambers. a rule, when anyone is asked to open the discussion of a paper, he is expected to criticise or express some adverse opinion, but I do not see how I could conscientiously take any exceptions to what has been presented in this paper. It has been a great pleasure to read it, and to hear the Doctor read it, and I wish to congratulate him upon the splendid manner in which he has presented this very important subject. The paper contains many valuable thoughts, which we should always bear in mind, and many valuable suggestions which will be of benefit to our patients as well as ourselves. It is also a timely paper, for there has never been a period in the history of the world when so much attention has been given the mouth and the teeth as at the present time. Dentistry has made marvelous progress in the last few years in more ways than one, and the progress in all the departments is worthy of consideration. The subject which has been creating the most discussion, and the one which the Doctor emphasizes most, is oral hygiene. It is not only receiving serious consideration from a multitude of our own practitioners, but it is attracting the attention of the medical profession and the educated people of all civilized countries.

The education of the patient at the chair is no doubt the most opportune and favorable method of obtaining satisfactory results. With a mirror in the hand of the patient we can, with the mouth mirror and suitable instruments, show him the exact condition of his mouth.

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But there is something more that devolves upon us than merely showing patients the conditions as they exist. Aside from pointing out cavities of decay, irregularities of the teeth, irritated gums, pockets and abscesses, it is our duty to impress upon their minds the relation existing between diseased mouths and diseased bodies. In other words, how it is possible for them to be infected through the mouth. This is not always easily accomplished. Considerable tact is necessary, for when patients have been under the care of physicians in whom they have absolute confidence, and when nothing has been said to them about the mouth as a probable factor in any troubles they may have, our suggestion may not be received kindly; but when cases of this kind do arise, usually a word to the attending physician is all that is necessary.

Another thought that comes to me is this: Patients usually associate disease and pain together. With a great majority of people it is utterly impossible to conceive how they can have any disease of a serious nature without pain. Several years ago a lady came to me in Denver who had a little fistula under the right eye. She was well educated, could speak three or four different languages, and seemed to be a person of excellent judgment in every way. Upon examining her mouth I found four or five discharging abscesses between the central incisor and the third molar on the right side above. The process and, in fact, the right superior maxillary, was like a fragile egg, an egg with a thin shell, that could have been crushed with very slight pressure. Not being able to give her immediate attention, I referred her to Dr. Jackson, who took away some twenty-five or thirty pieces of bone, and all the teeth on that side, from the median line to the third molar inclusive. The entire right maxillary came away with the exception of the floor of the orbit. There was nothing remarkable about this loss of teeth and bone, except as it illustrates the point referred to, of associating disease and pain together. This lady stated that in all the progress of this disease she had never had pain, and did not suspect that she had any serious trouble. This merely goes to show the notion that most patients have, that it is utterly impossible to have disease without pain. It also illustrates the importance of frequent visits to the dentist for examination.

While this subject of diseased mouths is of paramount importance to us, we must remember that when these patients present, they feel quite differently about it, and I often think when subjects come up outside of our immediate calling, how little we know about them. For instance, what a limited knowledge have we about law, about farming, banking, or railroading? And so when patients come to us, they are unfamiliar with the conditions existing in their mouths, and have not the slightest conception of what the results will be if these conditions are not changed. If



one of our number here should decide to embark in some other professional work, or take up some other line of business, he would simply be amazed when he came to learn the details. Our patients are in the same position; consequently it is our duty to show composure, and with kindness to impart to them just the knowledge we want them to have. As stated in the paper, they will frequently ask questions: "Why do my teeth decay?" "How did this abscess come about?" "Why do I have irritated gums?" "Why did this pulp die?" And that most interesting question, "What is pyorrhea?" Frequently a patient will say: "Mr. Jones never uses a toothbrush and has had no trouble. How do you explain his freedom from trouble, when I am using all precautions and my teeth are continually needing attention?" Such questions and statements open the opportunity for explanation and education.

The importance of prophylaxis at regularly stated intervals is second only to the relief of pain. Importance of Prophylaxis. If neglected, the remaining tooth structures are jeopardized. The permanence of our fillings, our efforts to stop disease in the surrounding tissues, and really our reputation as dentists is jeopardized. With a little explanation of how bacteria, under favorable conditions, form gelatinous placques upon the teeth, and how the acids exuded from them will dissolve the enamel just about as acids will etch marble, or as the hot sun will dissolve and produce porous rubber or ice, the patient will soon grasp the idea that the unhygienic conditions in the mouth are the cause of primary and secondary decay. And while this urging of prophylaxis upon our patients is of the utmost benefit to them, we must remember that the permanence of our dental operations depends upon the care of the mouth by the dentist and by the patient. Our work is certainly temporary if the primary cause of dissolution is still operating in the mouth. Therefore, efforts in teaching our patients should be of mutual benefit.

Education of sizing the fact of their susceptibility to early impressions. If you can only impress a child early in life, those impressions are lasting, and another thing, the child usually tells about all it knows; if it has something good it is bound to tell the other children about it. The condition of the mouths of the school children is appalling. Reliable statistics show that 95 per cent. are suffering from some dental disorder. In some localities the percentage has risen as high as 97 per cent., and in no locality where the children have been examined has it run below 90 per cent. Dr. Evans, of Chicago, says that not only are these school children suffering with toothache and from discharging pus and the poisonous contents of the



mouth, but there is great danger from harboring germs in the cavities of decay, and then he goes on to relate that numerous children who have had diphtheria and scarlet fever, have been discharged as cured and have gone out and given these diseases to other children through no other avenue than cavities of decay in teeth. Certainly there is opportunity here for co-operation on the part of the physician, parent and dentist.

Education of Parents.

What can we do in regard to the teaching of the parents? We must teach them that the mouth, unless scrupulously clean, contains many poisonous germs, and we must also remind them concerning the habits

of these little children. How common it is for children to chew gum or candy for a while, and then trade it off with the other children. They think nothing of this. They place penholders, slate pencils and lead pencils in their mouths, or pieces of money, and then exchange them with other children. We should teach them the danger of biting into fruit that some other child has bitten into; of exchanging hats, caps and gloves; of picking at sores and hangnails; of drinking out of a cup or eating with a spoon that has not been washed, and so on. Then there are some other things. The parents are quite surprised when told about the communicable diseases. They have not the slightest knowledge of the facts. They seem intensely interested when told that the communicable diseases, such as smallpox, chickenpox, diphtheria, scarlet fever. measles, mumps, whooping cough, ringworm and the itch, must be contracted through someone who has had them before. This is the opinion of the best medical authorities. If this statement is true, and if it is also true that disease is contracted through the mouth more than through any other avenue, it is certainly our duty to inform the parents that they may appreciate the importance of clean, healthy mouths. Opportunities for plucking the corn, to which the paper refers, seem unlimited. Consumption, typhoid fever and grippe come under the head of communicable diseases. Consumption we get from some one who has had it, or from drinking milk from a tubercular cow. Children are in the habit of putting their fingers in their mouths; then they unconsciously catch hold of a playmate, and in these careless acts diseases are contracted. It is good policy to suggest that they have the children wash their hands frequently, as they are inclined to put their fingers into everything that excites their curiosity.

Another suggestion. Have them breathe plenty of fresh air to eliminate germs; drink plenty of good fresh water, not too cold, and too much stress cannot be put upon that. When they have the children housed up, the temperature of the rooms should be 66 to 70, their sleeping room 55; if any colder the head should be covered for protection.



Food should be taken near the temperature of the body, about 98, the lowest should be 40, and the highest 120. Parents will appreciate all these suggestions.

The doctor mentioned nasal constriction and mouth breathers. A child with a healthy throat would, in a certain sense, be immune, while one with an inflamed tonsil would contract the disease, as the inflammation would offer good media in which the organism could grow and thrive. We all breathe germs of various kinds every day we live. While we are in a state of physical health we are strong enough to resist many germs, but when we are not, we readily contract any disease we come in contact with. He has also spoken of friendly relations between patient and practitioner. This is a most valuable asset.

Opportunity. If I interpret the paper properly, the emphasis is put upon this one word, "Opportunity." Opportunity, like a great many other words that are ex-

cellent, we get from the Romans. It means "near port," "close to haven." It means a favorable occasion, time or place for learning, saying or doing a thing. Life is good, and the opportunities for doing good are always with us. If a man has the proper aim, the proper motive or the proper purpose, opportunities for attaining his aim seem to start up everywhere. Perfection is beyond our reach, but it is the consensus of opinion that all those who earnestly strive to do the right thing attain excellent results and virtues, and taste of joy and peace. In this educational campaign it is not good policy to give up or to be discouraged, but simply to do the best we can, and not expect our seed to always fall upon good soil. No one should take seriously the old statement made by Voltaire, that "Opportunities for doing mischief come one hundred times a day, and for doing good, once a year." Virtue is difficult and vice is easy; disease, not health, is catching. We all know that folly comes without soliciting, and that we have to entreat wisdom. For ages the exhaustless resources here in America were unknown and unutilized, because the right man had not arrived. The doctor's reference to precious stones reminds me of the Kimberly diamonds, which, as you know, were worthless pebbles, and the playthings of the children of the savages until they fell before the eyes of a man who recognized what they were. The world is filled with precious and divine things, if we only know how to look for them, and I cannot conceive of anything more precious than the health and lives of the men, women and children with whom we come in contact as dentists. Innumerable men and women had seen the kettle boil, but it occurred to just one that the force which lifted the lid might be confined and made to do human service. We need have no particular apprehension because there are a few ripples upon our pond where the lifeboat

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floats. All we need to do is to go straight ahead. We are all on a moving sidewalk, and whether we look forward or whether we look back, we are passing on just the same, and the opportunities of yesterday, or the day before, are gone. They cannot be utilized. The paper rings with the proper suggestion that we take advantage of every occasion, time and place to preach and to teach the gospel of a clean, healthy mouth.

Mr. President and Gentlemen—Our essayist has, Dr. E. W. Uarlev. to my mind, admirably outlined most of the phases of one of the most important non-technical subjects that has been presented to this association. So far as I can recall, from a cursory examination of the literature as it comes to us month by month. I think he has opened a new field of thought, a new field of thought as presented in public meetings. It is certainly a subject which will grow upon our minds as we think of it, and as we practice it in our offices. And to any man who has not given this matter thought or practical attention, I can prophesy that if he will begin to do so from this time, it will attain immense proportions, and he will become an enthusiast in his turn. The public clinics and illustrated lectures are undoubtedly doing a great good. I came near saying that this method of teaching is an excellent adjunct to the other method of teaching, the more public method of teaching. I would have been mistaken. That method is a small adjunct to this method of teaching. It is infinitely of greater importance, greater in the sense of the greater effect, of the greater good that can be accomplished than any method of lectures, illustrated or verbal, or the two combined. In this country, we are just entering upon an era of wide public popular education along hygienic and sanitary lines, and the day is fast approaching when the medical practitioner, whether general or special, who fails to practice and to teach his patients disease prevention will become a lamentable back number. And that applies to the dentists just as clearly and as strongly as it does to the general practitioner or the specialist.

Unquestionably, as the essayist has said, the most important lessons that we can inculcate into our patients' minds are along the lines of oral sanitation. I am not going into the details of methods of teaching that at the chair. I leave that to him in closing, or to someone else. I would like to call attention to another phase of this subject, which the essayist, no doubt, omitted to mention, because it might sound as though selfish motives actuated the thought. I refer to that phase bearing upon the dignity of the dental profession, or the position which we occupy in the estimation of the public at large. Notwithstanding the training which every dentist must have, being a graduate of some dental school having essentially medical and surgical branches, we are nevertheless looked upon



by the public at large, to a great extent, merely as high-class artisans. I know and you know that there is no basic reason for that, but the condition exists, and exists in the public mind by virtue of our own neglect to follow out a systematic plan of teaching our patients at the chair. In attempting any plan of instruction, we must remember, of course, that all, even adults and children, are approaching an unfamiliar subject, and we must, of necessity, divest our text of technicalities so far as may be possible. I get back now to the phase bearing upon the dignity of the profession. There is no doubt in my mind but that the pursuit of general systematic education of our patients along the lines of sanitation especially, and often that alone, will be sufficient to prove to them that we do possess a knowledge beyond that of pure mechanics, and instead of ranking as we do, the time will surely come, and it will arrive soon if all will get to work, when the degree of D.D.S. will rank in the public mind with any of the specialties covered by the M.D. degree.

Mr. President, it is certainly gratifying to hear properties.

Dr. McGee.

a paper on prophylaxis that really gets down to earth.

I want to congratulate Dr. Warner upon having a paper full of good sound sense instead of a large element of hot air. The conservation movement, I think, should be extended to our public teaching. So many of the essayists upon a new subject are full of enthusiasm, and remind one almost of a joy rider going through town with the muffler wide open, so we can all hear the noise and smell the gasoline. I have heard some remarks of the public becoming more rapidly educated than the profession. A thorough education of the public above that of the profession would be impossible. The exact knowledge of the etiology of disease is medical. Even in regard to the commonest disease, if we are questioned we would be caught guessing. Consequently, when the impression is given abroad that by prophylaxis we can absolutely and positively prevent all diseases of the mouth, it must be erroneous, and it must react upon us eventually. What we must do is to get real facts and impart real and absolutely undebatable knowledge. The advertising matter we were discussing a while ago has been published in some papers, and a man who was traveling read some of them. His general knowledge of hygiene was not very broad, but he had been reading some of this prophylaxis literature, and in a Pullman car in the morning he went into the wash-room and was thinking about this mouth-cleaning proposition. He had not paid much attention to his mouth previously. So he picked up a toothbrush and started to scrub his teeth. Pretty soon another man came in and said, "What are you doing with my toothbrush?" "My goodness alive, is that yours? I thought that belonged in the car. I thought this road had taken up this prophylaxis work."

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The fact of the matter is that at the chair and through personal contact, we have every opportunity to extend real knowledge to our patients, and while a certain amount of publicity is desirable, I think that, as Dr. Warner has stated, the big end of this work must be done, first, through convincing the dentist of its importance, and having him educate himself, and I believe we can all gain more knowledge than we have; and, secondly, by letting some of it leak out and help the public in general, but we will help the public more by personal contact and attention than we shall by public print.

Dr. Foffman. has given us a great deal of food for thought, and I would emphasize the point that education of the patient means the education of the dentists, and the dentist will get just about the same class of education which he gives his patient. That is a fact that I think we might consider seriously. As a man thinketh, so he is, and if he attempts to educate his patient along these lines, he will derive a valuable education himself. We should endeavor to give them conscientious, intelligent education, and as Dr. McGee said, absolute facts, not things we think are facts, but things which have been demonstrated as facts.

The education of the patient at the chair, as Dr. Warner says, educates the dentist as well. How Dr. Ketcham. many of us when we leave college think that our education is completed, while as a matter of fact, it has only just begun. We have a great deal more to learn in the first three years after leaving college than we learned while we were in school. So many of us are quite content when we leave school to do a fine piece of work and show that to the patient, and impress the beauties of that piece of work upon the patient's mind, and not try to impress upon the patient the care of that beautiful piece of work and the care of the other teeth which are beautiful when they are properly cared for. I have found that it is very easy to interest children in the care of the teeth. They do not do it very well, of course, but it is easy to interest them in it, and get them started in the right direction, and then keep after them week after week, and we will finally have children who take much better care of the mouth than they would had they not been under our care. also find that it is possible to interest the parents of these children in the care of the teeth. Even the busy man, the busy multi-millionaire, will take time, and is glad to take time to learn while he is in your chair, and the other men of business, and also the society women will give it the same care that the busy business man will. You can impress upon wom-



en, many of them at any rate, the importance of the care of the teeth, and they will absorb at least part of what you tell them.

Importance of Proper Mastication of Food.

Now I believe that we can do a great deal of good by teaching the mastication of food. It does not mean to give the food a certain number of "chaws," as a woman said, but it does mean to masticate the food so perfectly that it is so evenly di-

vided and so thoroughly mixed with the saliva that it slips down the throat without any conscious effort at swallowing, and in a short time the soft palate becomes so educated that the least granule of food that is not evenly divided is detected, and you feel as though you were attempting to swallow something that you can not get down; that is, something that you should not. A lawyer friend, who has two children, one two years of age and the other four, two little girls, tells me that he has taught them to Fletcherize. He takes them on his knee and explains things to them very carefully. If they have been naughty he explains to them the reason why they should be punished, and he has done the same about Fletcherizing food, and about not eating candy or only very little, taking one piece after a meal; he tells them about Fletcherizing, and so they work away with their little jaws going. There is one little experiment that you can teach your child patients, and also impress upon their minds the importance of thorough mastication of food, especially starchy foods; tell the child to take a hard crust of dry bread and masticate it thoroughly, and as the saliva is mixed with the bread, this saliva will change the starch to sugar, and that they can tell it by the sweet taste. The children are of receptive minds, and they are investigators, and they will try it, and it will impress them.

Dr. Ferris of Brooklyn, and also of New York, has carried this farther. When a patient presents with a case of malocclusion, he frequently asks the patient to masticate some starchy food, and he puts that in a test tube and sets it aside for a few minutes. He asks him also to masticate some food a little less thoroughly, and then he notes the difference in those test tubes in the amount of starch which has been converted into sugar. He thus impresses it so forcibly upon the parents' minds that they see the point at once, and learn how essential it is to the child to be able to thoroughly masticate. You can point out that the percentage of starch which turns to sugar is very much less in a case of malocclusion than it should be, and this is also true of a person who is suffering from loss of some permanent teeth. There was an investigation carried on by one of the dental societies in the State of New York upon the effects of thorough mastication on starchy food. A report was sent out from the physicians of New York, who had made over two thousand



examinations of feces. They were able to classify the different mouths of these persons according to whether the teeth were absent, whether they had sufficient masticating service of the molars and bicuspids, and also whether they were masticators or bolters. They found almost invariably a large percentage of free starch in the feces of those persons who bolted their food, and those persons who were lacking in the normal number of grinding teeth. They proved that the presence of the free starch in the feces was due to lack of teeth in some of these cases, and by having the missing teeth replaced with artificial substitutes, they found that in many cases the starch disappeared from the feces. Then the artificial substitutes were removed from the mouth, the patient went on as before, masticating as well as he could, and immediately the starch appeared again in the feces. This is a good argument to present to some of your patients. All of this helps, and the better we would educate our patients the greater would be our success, not from the financial point of view alone, but from the point of being considered a man of science in his community, a man who is looked up to by the majority of his fellowmen.

I was very glad to hear that Dr. James is to Dr. U. Clyde Smedley. endeavor in his paper this afternoon to educate the dentists. I think that down in the depths of our hearts we know that we need education very badly along this line. As Dr. Warner progressed with his excellent and inspiring paper, I, for one, began to feel smaller and smaller and less and less efficient as a dentist, and feel as I have felt many times before, that I am not capable of instructing my patients as adequately as they should be educated in the care of their mouths. Mouths come to us often in a distressing state, but when a person of refinement and education comes in, and takes out of his mouth artificial dentures covered with filth, the accumulation of months and years, we cannot tell him plainly the condition of his mouth. I do not know how to educate such patients, and keep that nice friendly relation that Dr. Warner refers to as existing between dentist and patient. I, for one, am willing and anxious to learn.

I wish to state that I fully appreciate the words of Dr. Cindsay. of Dr. Warner's paper, and it seems to me that this is the time for the matter of oral hygiene and oral prophylaxis to be presented to the dental profession. There is not a man here who does not know that the mouths of the public are in a condition that is, to say the least, deplorable. I have the statements of reputable physicians that if you were to ask them what caused the most physical deterioration, alcohol, or bad teeth and foul mouths, they would unhesitatingly say "foul mouths." I, of course, do not have anything to pre-



sent any more than this to say about the education of the patients, that we cannot educate our patients unless we are properly educated ourselves along these lines. It would be folly for a man to stand before an intelligent patient, when he was ignorant of prophylaxis, and try to tell that patient something about the care of the teeth by prophylaxis. The patient would say, "Physician, heal thyself."

Along the line of educating the patient in the chair, I think the greatest reform I ever made was in a male patient. I had tried to be decent with him for a while, but one day I said to him: "If I were your wife, I would make you live at a 10c. restaurant. Any old food you get is plenty good enough for you, because you spoil it, even if it is the best." That fellow really went out and started to clean up, and I think that little remark did wake him up, and he realized it was a waste of good food to give it to him, and he began to understand why he had all sorts of indigestion. So he started to clean his teeth.

I would like to make a confession, and I imagine that there are other dentists here that know just exactly how to teach oral prophylaxis, yet do not do so.

The reason why I do not always do it, is because so many times I have not the time. I would like to know from Dr. James and Dr. Warner, these busy men (I understand both of them are so busy that they cannot take any new families into their practice), where they find the time, or to whom do they charge the time when they were doing this educating. I have done some educating, myself, but quite often I do not have the time; one patient may be waiting while I have worked overtime on the preceding patient. I have not the time to take ten, twenty or thirty minutes, and sometimes more, to try to make each patient understand what oral prophylaxis means; what it may mean in the end to him, and the doctor's bills it is bound to save. It takes time. I would like to ask these gentlemen do they charge up this instruction to profit and loss, or do they charge it to the patient as he goes along. I think this is why a great many of us do not teach oral prophylaxis as we should to each and every patient. I wish Dr. Warner, in answering, would speak to this point.

I would like to quote history to help our friend, Dr. Wm. Smedley.

Dr. Howell, out a little. I will refer to Dr. Atkinson, of New York. He once had a patient who had a son who constantly plied him with questions. The parent said to him: "I wish you would take a little time and answer Johnny's questions. He has a very inquiring mind." Dr. Atkinson did so, and when the bill came, there was an item which read, "Answering Johnny's questions, \$300."

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I want to say one word before answering our friend's question, as to the best way to educate a patient in oral prophylaxis, and that is to do oral prophylaxis for him. This takes time, and when you do work, and give your patient your time, you have to charge for it. If anybody thinks he can educate a patient on oral prophylaxis without doing work, he is mistaken. It requires just as much work and just as much time as when filling a tooth, or crowning a tooth, or any other dental operation. The important thing is to get it down to a definite plan, a definite system of procedure, so that you get results that the patient is aware of. When they get that they know they have something.

Dr. Flowell.When you do a certain amount of instructing, do you charge that in the work?

You are instructing all the time you are working. Explain to the patient as you proceed, everything that you are doing as you go along. You need

not stop at all.

Dr. James.

I think it is just as proper for the dentist to receive fees for advice that takes time, as it is for the physician or the lawyer. The time spent in advising a patient what to do is worth probably more than what we actually do for them, occupying the same amount of time. I do not see anything

do for them, occupying the same amount of time. I do not see anything improper about charging a nominal fee for advice, if they come in for advice alone and not for work. Of course, if you do work for them, we can advise them while we are doing the work, and make it more impressive.

Personally I fail to see any difference between spending an hour in actual instrument work, and collecting the proper fee, and spending a half hour in instrumental work and another half hour in advising.

Dr. Chambers.

I do not think this paper had anything to do with fees, Mr. President.

Dr. Winner. been touched upon, the matter of educating a patient who thinks he or she is cleansing the teeth, when really the teeth are not cleaned, because of the lack of a proper brush, or because they fail to use the correct method. This is one of the essentials, and yet I venture to say that three-fourths of the people who use tooth-brushes buy them with reference to how cheaply they can get them. They go to the bargain counter of a department store or drug store, and they get what the druggist tells them they should buy, which usually is the

one the druggist can get the most profit out of. The dentist very rarely



says anything about what sort of a brush should be used, what shape it should be, how it should be trimmed, etc., and there is really the first starting point of prophylaxis, a properly designed brush, a well-made brush, a brush that will reach all parts of the mouth readily and do the work effectively. Many years ago that matter was impressed upon my mind by a question of a patient, a question that perhaps everyone has heard, "Doctor, what shall I use to clean my teeth with?" meaning some nostrum, purchasable at a drug store. Not intending to be facetious, I said, "Use a brush." "Well, but I do use a brush," yet her brush had not brushed her teeth. She used a brush like a shoe brush, straight across, and back as far perhaps as the first molar. She needed, and everybody needs a brush that can be made to go into the spaces, back and around the wisdom teeth; a brush that conforms to the arch. And so I studied along that line, and after experimenting, and with the help of others, we prepared a brush, and we had a number made. These brushes have been used by many dentists, and they were very glad to get them, but it cost us so much we could not sell them at a profit, and, besides, very few dentists really appreciate the value of a good brush. People write to me every few days from different parts of the country, "Can you send me some of those toothbrushes?" Now I cannot, because I have not any more. The dentists should find out what kind of a brush is most effective, and where it can be bought, and urge the patient to get the right sort of brush and a dentifrice of the right sort. If they should need an alkaline dentifrice, they should have it. They should not get a neutral dentifrice or an acid. Hence, I would educate the patients what to buy when they go to the store, not to take the advice of the druggist or the clerk at the bargain counter. The dentists should show what is needed, and urge the patient what to get. I wish to say that I know druggists who will hardly speak to me, because I will not permit them to sell my patients useless things and call them toothbrushes. I see that the patient gets the brush that I want. If the druggist does not keep it, I send to the factory.

Dr. Varley spoke about the dignity of the profession. That is a thing that has never worried me very much. A good many people are on their dignity all the time. They are worrying over their dignity. I think if any man conducts himself as he should, his dignity will take care of itself. As the water will not rise above its source, the dignity of a profession will not be any greater than the dignity of the members thereof. Many court the good opinion of physicians. I do not think we need to court it at all. If we conduct ourselves as we should, we will not need the good opinion or good words of physicians, but we must bear this in mind, that the medical profession as a whole has done, and is doing, a great deal more for

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humanity at large than the dental profession, but it is not necessary that this should be so. We have just as large opportunities as the medical profession, and in many instances larger, and if we use our opportunities, we will not need to ask the medical profession for commendation. We will get it from where it ought to come—from the people themselves.

Dr. Chambers spoke of the wide field. I think that cannot be emphasized too strongly. Dr. Hoffman spoke of the retroaction of this instruction, and I am impressed by this thing every day, and in preparing this paper, I assure you that I got a great deal more out of it than any of you possibly could. If any of you, or all of you, take up this subject, and in any case or number of cases attempt instruction, you will find that you are learning a good deal more than you are teaching your patients.

Someone suggested that it is hard to correct a patient who is not caring for her mouth without giving offense. It is not what a person says so much as how it is said that counts, and I find that I am able to say very blunt things, saying them in a proper way, with a pleasant smile, without giving offense. I frequently say to a patient, "I see you are not working for the druggists. I am in league with the druggists, and I want to have toothbrushes worn out just as fast as possible, and you are not wearing out your toothbrush rapidly enough." No one fails to see the point, thus put in a joking way. One gentleman said that I overlooked the matter of personal instruction to my patients. I think I said that we should have the patient take a toothbrush in his hand, and take his hand in ours and demonstrate actually how to use a toothbrush. This is something I do every day almost, and with children particularly. It is very interesting to them. And it is astonishing how few children or adults know how to hold a toothbrush, and how to handle it. I prescribe a toothbrush for every individual case. I examine the mouth, I find out how the teeth are set, whether they are regular or irregular, the distance between the surface and the upper and lower teeth, and then I prescribe a toothbrush to fit that case. Occasionally I order a toothbrush from a drug store, and take a pair of scissors and cut it to fit the mouth.

I purposely left out the matter of fees. I do not find patients objecting to my charge for my time, no matter what I am doing, whether I am instructing them or working with them. I instruct as I work, as Dr. James said, and if I am instructing, I am working. I always consider that my first duty is to the patient in the chair. I have accepted that patient, I have accepted tentatively his fee, and my first duty is to him. I do not have any concern about anybody waiting, because I can work for only one person at one time, and if I am doing that carefully and conscientiously, I am doing my whole duty. I think if we would all get that idea into our heads, we would do a great deal more for our patients.

Dr. Watson spoke of the idea of not being selfish in this matter. If we are true gentlemen, true professional men, we are not doing this with a selfish aim. We are doing it with the single and sole purpose of doing all we can for our patients. I want to bring that out with all possible force.



The tendering of a complimentary banquet to one of our esteemed confreres is perhaps the most honorable custom of the dental profession. Two great purposes are served. The guest discovers that his life work has been appreciated; that he has ten friends where he had counted but one; that kindly thoughts and kind words are allotted to him by men glad to think and to speak so of him. This is indeed the declared object of the occasion, and yet the second good purpose perhaps is even more important than the first. Such affairs inspire the younger men to greater effort, that they may make greater achievement, and that, having achieved, perhaps, some day they, too, may be feted, applauded, and honored. Finally the convivialty of such occasions, coupled with the fact that all are assembled to honor one, makes for fraternalism and the brotherhood of dentists.

Banquet to Wilbur F. Litch. The banquet given to Dr. Wilbur F. Litch on Dec. 16th in Philadelphia, was a notable affair. Seldom has a more distinguished company of dentists sat together. Many journeyed from far distant



cities, and all enjoyed the evening and went home better men for having made the sacrifice of time and convenience. The responses to the toasts were particularly good, and the eulogies extended to the guest extremely interesting, as each speaker shed light upon a different aspect of his character.

It was reserved to Dr. Litch himself, however, to make the best speech of the evening. He sketched the chief events which had occurred during his professional career; the founding of the first dental college; the formation of the first dental society; the publication of the first dental journal; combined, a trinity of factors which has in reality created the profession of dentistry and elevated it from a place among the mechanical crafts to a high position in the art of healing and caring for the sufferings of mankind. He mentioned other epoch making events, such as the discovery of anesthesia, the germ theory of disease, the improved success of surgery through sterilization, etc., and finally he expressed gratification that he is still alive and able to aid in the attempt to place dentistry among the beneficent professions through the campaign of oral hygiene.

Dr. Litch has retired from the active practice of dentistry, and has given up his work of college teaching, but the profession is to be congratulated upon the fact that he will continue to edit the *Dental Brief*.

Banquet to William Wallace Walker.

Having terminated the old year with one banquet we are to inaugurate the new year with another. On January 20th, as elsewhere announced in this issue, a complimentary banquet is to be tendered to Dr. William Wallace Walker at the

Hotel Astor, New York City. This will be one of the most important occasions of this character in the history of dentistry, because it will serve to mark a new epoch, nothing less than a closer alliance between dentistry and medicine.

In earlier life Dr. Walker distinguished himself by making the First District Dental Society of New York the best known local society in the world at that time. As a reward for these services he was made president of the New York State Dental Society and later still was Chairman of the organization committee which arranged the World's Columbian Dental Congress, held in Chicago.



For a brief period of years Dr. Walker rested on his laurels, but a few years ago he became enamored again of his first love, the First District Dental Society of New York, which had been allowed to retrograde or at best to progress so slowly that at least one local society, the Odontographic, now known as the Chicago Dental Society, had outstripped it in importance. Dr. Walker, with his well known energy, indomitable will and magnetic personality, put his shoulders to the wheel, determined to win back the prestige once held by the New York society, and he has more than succeeded.

In a few brief years he has established successfully a number of post-graduate study classes within the society, and has likewise achieved the apparently impossible by harmonizing and uniting into one grand dental organization the First District Dental Society, the Odontological Society, the New York Institute of Stomatology, and the New York Institute of Dental Technique.

This alliance, this reorganization, will have a much wider significance than might be imagined at a first glance. It is on the cards that the National Dental Association is soon to be reorganized along the lines of the American Medical Association. The State Dental Societies have been asked to join in this movement. Ohio, the first to meet, has set a grand example that will surely and swiftly be followed by the other important States, the majority of which have already reorganized in anticipation of this event. New York State, however, has lagged behind; but with the impetus of this alliance of the several societies in the Metropolis, those who have thus far stood in the way as a hindrance to progress will probably see the handwriting on the wall, and therefore it may be safely prognosticated that the New York State Society will be reorganized, and will join the National. This must come and, when it does, much of the credit will be due to William Wallace Walker.

For these reasons the committee in charge of the banquet arrangements have determined to utilize this occasion as a means of fostering a closer communion between dentists and medical men, as well as others who in common are working for the uplift of mankind. The speakers of the evening therefore will not, as heretofore, be exclusively dentists. It would not be wise to disclose in full the plans of the committee, but at least it may be stated that some of the most noted men in the United

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States will respond to toasts; and it may also be mentioned that already, even before the official invitations have been mailed, prominent dentists from all parts of the country have signified their intention to be present.

Complimentary Dinner to Dr. William Wallace Walker.

A complimentary dinner will be tendered to Dr. William Wallace Walker on the evening of Saturday, January 20, 1912, at the Hotel Astor, New York City. The dinner is given by the First District Dental Society of New York.

Dr. Walker has devoted himself for many years to the advancement of the interests of this Society, and, in addition to inaugurating a very successful series of Post-Graduate Study Sections, has also harmonized the conflicting society interests of the metropolis, by merging all the existing societies with the First District Dental Society, which, therefore, now includes the New York Odontological Society, the New York Institute of Stomatology and the New York Institute of Dental Technique.

The committee makes this public announcement because they fear that some of the many hundreds of friends of Dr. Walker throughout the country may accidentally fail to receive an invitation. All who desire to be present are therefore requested to waive formality and send their acceptances at once to the Treasurer, Dr. James W. Taylor, 106 East 57th St., New York, enclosing the subscription price—ten dollars.

SAFFORD G. PERRY, Chairman. HENRY W. GILLETT, Secretary.

Obio Society Votes to Join the National.

(The following resolution was unanimously adopted by the Ohio State Dental Society, Dec. 6th, 1911.)

Whereas, The National Dental Association has tentatively adopted a Constitution, following the plan of the American Medical Association, providing for State and Territorial Dental Societies becoming constituent members thereof and entitled to a proportionate representation in the House of Delegates, when two-thirds of the membership of any State or Territorial Society is officially reported to the National as members; therefore, be it



Resolved, That the Ohio State Dental Society recognizes the need of a larger and more effective National organization and endorses the proposed plan as one which should have the support of all State and Territorial Societies; therefore, be it further

Resolved, That the Ohio State Dental Society in annual session, December 5-6-7, 1911, officially expresses a desire to become affiliated with the National Dental Association and pledges at least two thirds of its membership for a period of two years, beginning in 1913, in accordance with the aforesaid Constitution.

Dr. Safford G. Perry Dead.

As we go to press we learn with grief of the death of Dr. Safford G. Perry, after a brief illness, from ptomaine poisoning. In consequence, the proposed banquet to Dr. W. W. Walker would have been postponed, but at the expressed wish of Mrs. Perry and of Dr. Perry himself during his last hours, the dinner will be given on January 20, as announced.

Bill of Importance to Dentists Before Congress.

In the laws of the District of Columbia regulating the practice of pharmacy and the sale of poisons enacted by Congress May 7th, 1906, and amended February 27th, 1907, the language is such as to restrict the sale of all drugs, etc., in such a manner that even nitrous oxide gas could not be sold by a dealer in dental goods. These laws were fostered by the pharmacists and the example set by Congress has been imitated in a number of the States. To relieve this condition, Dr. Emory A. Bryant, Chairman of the Committee on Legislation of the National Dental Association, succeeded in having a bill introduced into Congress, a copy of which will be found below. This bill has passed the Lower House and will probably come up shortly in the Senate. Members of the profession who have any influence with Senators should exert this influence at once in behalf of the bill.

62nd Congress, 1st Session. H. R. 8619.

In the House of Representatives.

May 4, 1911.

Mr. Johnson of Kentucky (by request of the Commissioners of the District of Columbia) introduced the following bill; which was referred

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to the Committee on the District of Columbia and ordered to be printed.

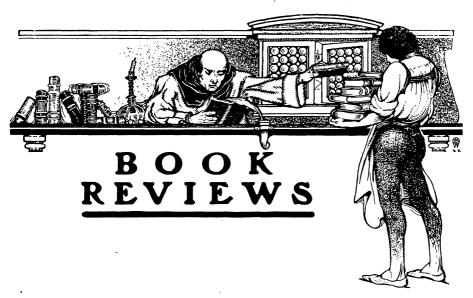
A BILL

To amend "An Act to regulate the practice of pharmacy and the sale of poisons in the District of Columbia and for other purposes," approved May seventh, nineteen hundred and six.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the second proviso in section eleven of "An Act to regulate the practice of pharmacy and the sale of poisons in the District of Columbia and for other purposes," approved May seventh, nineteen hundred and six, is hereby amended to read as follows:

"Provided further, That the above provision shall not apply to sales at wholesale by jobbers, manufacturers, dental-supply houses, and retail druggists to retail druggists, hospitals, colleges, scientific or public institutions, and dentists in the actual practice of their profession."





Practical Dental Metallurgy.

A Text and Reference Book for Students and Practitioners of Dentistry, by Joseph Dupuy Hodgen, D.D.S., fourth edition, revised by Guy S. Millberry, D.D.S. Published by C. V. Mosby Company, St. Louis, 1911. Price, \$2.50.

This work of 373 pages is essentially a dental student's text-book, and its general arrangement well adapted to a student's needs. It was prompted, its author tells us, "To present in a clear and practical manner the principles of dental metallurgy to students already fairly familiar with the principles of inorganic chemistry, insomuch as they are applicable to the everyday wants of the dentist." It was the outcome of the author's estimate of a student's needs, after he had had several years' practical experience as a teacher in classroom and laboratory. It modestly pretends to give the groundwork of the subject only, the author presupposing that the teacher will add needful explanatory elaboration from the lecture table; the only way, indeed, by which a subject that is constantly changing can be presented to a class well up-to-date. That it has been adopted as a text-book by a number of dental schools is evidence of recognized merit.

This fourth edition has been completely revised by Dr. Millberry to bring it up-to-date. He has used exclusively the metric systems of weights and temperatures, retaining the troy system only in its application to precious metals. This, until the metric system is more generally adopted

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and in common use, is somewhat confusing. While the metric system is gradually coming into use in some branches of science, it is making but little progress towards general adoption in this country, notwithstanding its recognized merit.

It would be unjust to apply the same standard to a work of this character as one would to a work more pretentiously scientific, or to one which sets out to tell the whole story. As a supplement to the lecture table, or a ready reference work to a practitioner who wishes to quickly reach information within the scope of the book, it is well arranged and sufficiently full. It caters to a dentist's needs, and in most matters gives concisely, clearly, and in easily followed, and readily understood, language the special metallurgy with which a dentist and dental student is most concerned. In a few instances discarded dental laboratory procedures are given that might well be omitted.

There is a want of uniformity in using chemical terms; for instance, treating of the electro-deposition of silver the reader is directed to "reduce pure grain silver by mixing with nitric acid to argentium nitrate;" again it is called nitrate of silver, while accepted usage puts the base first,—silver nitrate. This change should be made wherever needed. We would suggest that in a work of this character a multiplicity of formulæ for solders culled from out-of-date works should be omitted; they are confusing to students, and are useless, and it is high time to omit from such formulæ brass, spelter, etc., since no one knows what they are. Brass may contain copper, zinc, lead, as its principal ingredients, with all their commercial impurities, but in what proportion, who knows? Pure gold, pure silver, pure copper, and pure zinc are metals easily obtained, and when carefully weighed produce an alloy of exact composition.

The chapter on parting gold is excellent; a tiro, with a little care may follow its instructions with a very fair chance of success. In all such intricate chemical operations, however, it must be remembered that there is much one can learn only by experience, and it is wise not to risk too much when trying to part gold for the first time.

The chapter on Dental-Amalgam Alloys is unsatisfactory. (The author suggests this term for alloys intended to be comminuted and then mixed with mercury to form a dental amalgam. The suggestion is a good one; the terms, dental amalgam alloys and dental amalgam, are distinctive.) It begins with the misstatement that it was probably introduced in the year 1826, by M. Taveau, of Paris. Taveau published a method of preparing "Silver Paste," in the fifth edition of his work, Hygiene de la Bouche, Paris, 1843, page 236, and there states that it is the same which English dentists have been using some six or eight years. He makes no mention of it in the edition of the same work, 1826, nor in any of the



intervening editions. The first instructions for preparing silver paste, so far found, is in a work by a London dentist, dated 1837, who states he had been using it for several years. The first amalgam used for filling teeth was suggested by Mons. L. Regnart in a pamphlet published, Paris, 1818. In order to reduce the temperature needed to soften fusible metal, so that it could be packed into a cavity painlessly, he suggested adding mercury, and the amalgamated fusible metal was in general use for many years. When silver amalgam was first used, or by whom, who knows? Alloys of silver, tin, gold, and platinum, for making dental amalgam were in use in England in the early forties, and it was from England that Dr. William M. Hunter, of Cincinnati, learned of the tin-silver alloy, the formula of which he communicated to Dr. Townsend. The credit of making it known to the profession in this country belongs to Dr. Hunter, not to Dr. Townsend.

The author pays the usual compliments to the Crawcours, who came to New York about 1833, and who are credited with causing the amalgam war. The history of the famous amalgam war has not yet been written. When it is, it is highly probable that we will take off our hats to the Crawcours. They not only introduced a material that is now indispensable to tooth saving, but taught dentists in this country that teeth which they were extracting daily could be filled and made useful and comfortable for years. Since their day both this material and the methods of tooth saving have been greatly improved; their coming, however, marked a distinct advance in tooth-saving dentistry, and they deserve a place of honor with their fellow countrymen, Le Maire and Gardett.

The description of the later improvements in dental-amalgam alloys is not written so as to be understood by students; it is confusing. The student and the busy practitioner is more interested in results than in the tedious and intricate processes by which they have been reached. The process given for making the alloy is not the best. The Flagg method of first fusing in the crucible a liberal quantity of borax, then adding the tin, followed by the less fusible metals, or dumping the mixed metals into the crucible (except the zinc, which is added immediately before pouring) gives far more accurate results.

The outline of laboratory procedure, which closes the work, is well arranged to illustrate the text. W. H. T.

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Modern Dental Materia Medica, Pharmacology and Cherapeutics.

Including the practical application of drugs and remedies in the treatment of disease. Third edition, revised. By J. P. Buckley, Ph.G., D.D.S. Philadelphia, P. Blakiston's Son and Co., 1011.

The dental profession has generously acknowledged the author of this work as its benefactor. He has converted us to rational methods in the treatment of some of the most prevalent pathological conditions with which we deal and it cannot be questioned that many thousands of teeth are doing service to-day which would have been replaced with artificial substitutes but for the teachings of Dr. J. P. Buckley. The profession is, naturally, quite prepared to accept what he writes in the line of his specialty with confidence in its authenticity.

The subject, as a whole, is one which certainly has not received in the past the attention it deserves, and to-day the older members of the profession should be as appreciative as the undergraduates of a text book which presents comprehensively and clearly the knowledge which they need along this neglected line. No small factor contributing to our deficiencies in the past has been the scarcity of good literature on the subject, but we can no longer plead that excuse, for able writers are now supplying our needs.

Dr. Buckley's work as investigator and writer in the past has placed' him in a position where we expect much of him but no one, we believe, will find cause for disappointment in his text book. That the work has been well received is evidenced by the fact that it has passed through three editions in twenty months.

The book is divided into two parts, the first being devoted to Dental Materia Medica and Pharmacology, the second to Practical Dental Therapeutics. Although it is probable that the average student will find the second part the section of greatest value to him, it must be noted that the whole work is unusually well arranged for a systematic study of the subject, there being every evidence of a commendable attempt by the author to present the various branches in logical sequence. The importance to the student of such continuity in the arrangement of topics is too often lost sight of or disregarded by text-book authors, and Dr. Buckley's endeavors in this direction should be appreciated. As an example, quoting from his preface to the first edition, "no prescriptions have been written until prescription writing has been discussed." It might also be said that prescription writing is not discussed until the student has been presented with a most thorough treatise on such elemental subjects as are necessary to a comprehensive understanding of prescription writing.



Following a proper consideration of the general principles of "Materia Medica, Pharmacology and Therapeutics," "The Sources of Drugs," "The Classification of Pharmaceutic Preparations," "Methods of Administration and Conditions Modifying the Effect of Drugs," each drug of interest to the dental practitioner is described as briefly as its importance will warrant. The typography is excellent, a point which contributes in no small degree to the value of a book of reference. "Local" and "General Remedies" are separately considered, the former being consistently treated first as being of more importance to the dental profession, and we are relieved to find full and complete treatment given only to those drugs which are in common use among modern dental therapeutists, the more-or-less obsolete remedies receiving briefer mention.

The chapter on "Prescription Writing," considering the generally admitted lack of knowledge among dentists on the subject, is possibly a little too concise, and we believe that a table of the Latin phrases and contractions more commonly used in prescriptions issued by dentists would add to the value of this chapter, as well as a more complete treatment of the subject of "Medical Latin."

Part II is headed "Practical Dental Therapeutics," which the author designates in his preface as a subject "of sufficient importance to occupy a place in dentistry by itself." Under this title are presented one hundred and thirty pages of very readable and instructive matter. A goodly portion of the text in this latter part of the book describes the author's original methods of treatment, and one not convinced of his authority might not unreasonably accuse him of dogmatism. However, "the proof of the pudding is in the eating." Dr. Buckley's theories and therapeutic teachings so far as they have been tried have not been found wanting, and we believe that in presenting his original methods as well as many of his original prescriptions he is not departing from generally accepted modern standards in dental therapeutics.

The "Surgical Treatment of Chronic Alveolar Abscess and Pyorrhea Alveolaris" is, perhaps, not strictly a part of the subject of therapeutics, which the author admits in his preface is "the science which deals with the application of drugs or remedies to the treatment of disease" but the surgical and therapeutic treatment of these pathological conditions are so interdependent that such interpolation of an outside subject must in the present instance be considered excusable.

The author sums up in his chapters on "Putrescent Pulps and Acute and Chronic Alveolar Abscesses" the results of his well known investigations in connection with this branch of dental pathology, and it may

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safely be said that his prescribed methods can be accepted as the last word of science up to date on the treatment of these conditions.

Under "Pyorrhea Alveolaris" Dr. Buckley classifies the disease in a somewhat original manner, but the classification is not inconsistent and his treatment of the subject is as conservative as we would expect from an advocate of rational methods in dealing with a subject the true nature and etiology of which so little is known.

The work as a whole cannot but be accepted as a very complete, clear and well arranged treatise on the subjects involved, and both author and publishers should be congratulated for their success in supplying the dental profession with a text book well presenting the subjects of dental materia medica, pharmacology and therapeutics.

E. N. K.

H Manual of Dental Prostbetics.

By George Henry Wilson, D.D.S. Published by Lea and Febiger, Philadelphia and New York, 1911. Price four dollars.

This work of 507 octavo pages and 396 engravings covers the whole field of prosthetic dentistry, except the specialty of crown and bridgework. On the whole, the author has given a fair exposé of the region involved, and the processes employed in constructing artificial dentures. Within later years so much has been added to this branch of our specialty by the study of the mechanics of mastication, by refinement of methods to make artificial dentures more fully perform the function of the dentures which they supplant, and by the adaptation of new materials and improvement of old ones, that it is a difficult task to compress within the limits of a small volume all that should be included in a manual suited to the needs of students, and as a reference book for practitioners. Necessarily some portion must be slighted; in this work it is the least used process, the construction of soldered dentures on swaged metal plates. He has wisely devoted considerable space to occlusion and to the mechanical devices for obtaining correct data for arranging the models in the articulating or antagonizing frames to make these more accurately represent the human jaws at rest and in motion, with a view to greater stability and effectiveness of the finished denture. This, as now developed, is an important matter, and one not generally understood nor appreciated by dental practitioners. He has freely quoted, judiciously and with proper credit, from the best writers on this subject, and his quotations will, no doubt, bring facts to the notice of many who have no access to the original sources of information.



The work is open to a friendly criticism of too closely following the author's personal methods in the purely laboratory manipulations. In these matters the methods developed in commercial laboratories, and equally well adapted for use in a private workroom, are more rapid, efficient and labor saving, and produce as good, if not better, results.

The plaster cast into an impression becomes a "model" as soon as it is used as a base upon which to construct a denture. The author terms it a "cast," and gives reasons therefore that are not convincing. The expression, "slit of the mouth," meaning the lip line, the use of "glossing" for "polishing," "doubler" for "reinforcing piece," "finisher" for "rim," etc., can hardly be considered improvements. In such matters it is better to follow accepted usage when writing text books.

W. H. T.





SOCIETY ANNOUNCEMENTS

National Society Meetings.

NATIONAL DENTAL ASSOCIATION, Washington, D. C., September 10, 11, 12, 13, 1912. Secretary, Dr. Homer C. Brown, 185 E. State St., Columbus, O.

CANADIAN DENTAL SOCIETY AND ONTARIO DENTAL ASSOCIATION, union meeting, Hamilton, Ont., June 3, 4, 5, 6, 1912. Secretary, J. A.

Cameron Hoggan, Federal Bldg., Hamilton, Canada.

Institute of Dental Pedagogics, Chicago, Ill., January 24, 25, 26, 1912. Secretary, Fred. W. Gethro, 917 Marshall Field & Co. Bldg., Chicago, Ill.

AMERICAN SOCIETY OF ORTHODONTISTS, Chicago, Ill., July 5, 6, 7, 1912. Secretary, Dr. F. C. Kemple, 576 Fifth Ave., New York.

State Society Meetings.

ARKANSAS STATE DENTAL ASSOCIATION, Little Rock, Ark. Secretary, Dr. I. M. Sternberg, Fort Smith, Ark.

ARIZONA DENTAL SOCIETY.

Secretary, Dr. H. H. Wilson, Phoenix, Ariz.

CONNECTICUT STATE DENTAL ASSOCIATION, Bridgeport, Conn., Apr. 16, 17, 1912.

Secretary, Dr. Arthur V. Prentis, New London, Conn.

GEORGIA STATE DENTAL SOCIETY, Americus, Ga., June 11, 1912.

Secretary, Dr. DeLos H. Hill, Prudential Bldg., Atlanta, Ga.

Illinois State Dental Society, Springfield, Ill., May 14-17, 1912. Secretary, Dr. J. F. F. Waltz, Decatur, Ill.

INDIANA STATE DENTAL ASSOCIATION, Indianapolis, Ind., May 21, 22, 23, 1912.

Secretary, Dr. Otto U. King, Huntington, Ind.

MICHIGAN STATE DENTAL SOCIETY, Detroit, Mich., April 11, 12, 13, 1912. Secretary, Dr. Marcus L. Ward, Ann Arbor, Mich.



MISSOURI STATE DENTAL ASSOCIATION, Kansas City, Mo., April 16, 17, 1912.

Secretary, Dr. S. C. A. Rubey, Clinton, Mo.

Nebraska State Dental Society, Lincoln, Neb., May 21, 22, 23, 1912. Secretary, Dr. J. H. Wallace, Omaha, Neb.

New York State Dental Society, Albany, N. Y., May 9, 10, 11, 1912. Secretary, Dr. A. P. Burkhart, 52 Genesee St., Auburn, N. Y.

NORTH CAROLINA DENTAL SOCIETY, Raleigh, N. C.

President, Dr. Phin. Horton, Winston-Salem, N. C.

North Dakota Dental Association, Grand Forks, N. D., May 14, 15, 1912.

Secretary, Dr. E. N. Hegg, Hatton, N. D.

PENNSYLVANIA STATE DENTAL SOCIETY, Pittsburgh, Pa.

Secretary, Dr. Luther M. Weaver, 7103 Woodland Ave., Philadelphia, Pa.

South Carolina State Dental Association, Isle of Palms, Charles, S. C.

Secretary, Dr. W. B. Simmons, Piedmont, S. C.

Texas State Dental Association, Abilene, Texas, May 2, 3, 4, 1912. Secretary, Dr. J. G. Fife, Dallas, Texas.

UTAH STATE DENTAL SOCIETY, Ogden, Utah, June, 1912.

Secretary, Dr. W. G. Dalrymple, 2421 Washington Ave., Ogden, Utah.

VIRGINIA STATE DENTAL ASSOCIATION, Old Point Comfort, Va., July 9, 10, 11, 1912.

Secretary, Dr. W. H. Pearson, Hampton, Va.

Washington State Dental Society, Spokane, Wash., June, 1912. Secretary, Dr. F. B. Lynott, 249 Peyton Blk., Spokane, Wash.

West Virginia State Dental Society, Webster Springs, W. Va., Aug. 14, 1911.

Secretary, Dr. Frank L. Wright, Wheeling, W. Va.

Wisconsin State Dental Society, Oshkosh, Wis., July 9, 10, 11, 1912. Secretary, Dr. O. G. Krause, Wells Bldg., Milwaukee, Wis.

6. U. Black Dental Club.

It is with regret that the G. V. Black Dental Club, of St. Paul, Minn., announces that it will be unable to hold its annual clinic in February, 1912. Illness of some of the members, and of others whom we expected to help us, make it necessary for us to take this action.

R. B. WILSON, Secretary.

206-8 Lowry Bldg., St. Paul, Minn.



Alumni Association, Dental Department, Marquette University.

The sixth annual clinic and Manufacturers' and Dealers' Exhibit will be held January 30, 31, February 1, 1912, at the Milwaukee Auditorium, Milwaukee, Wisconsin. All ethical members of the profession are cordially invited to attend.

W. F. STRAUB, Secretary.

721 Third St., Milwaukee, Wisconsin.

South Dakota Board of Dental Examiners.

The South Dakota State Board of Dental Examiners will hold its next meeting at Sioux Falls, So. Dak., January 9, 1912, at 1.30 P. M., and continuing three days. All applications for examination, together with a fee of twenty-five dollars, must be in the hands of the secretary by January 1st. Applicants who have not complied with the above will not be permitted to take the examination.

For further information, blanks, etc., address

ARIS L. REVELL, Secretary.

Lead, So. Dak.

Piedmont District Dental Society.

The next regular tri-annual meeting of the Piedmont District Dental Society will be held in Piedmont, S. C., March 26th, 1912. All of the time will be devoted to clinics with the exception of a short business meeting at which any one who wishes to may ask the society such questions as, "How do you treat abscessed deciduous teeth?" or "How would you treat a tooth with a Richmond crown cemented to position with an abscess under it?" etc.

Clinics will begin promptly at 9 A. M.

Piedmont, S. C.

W. Busey Simmons,

Sec'y and Treas.

